CHAPTER II
REVIEW OF LITERARTURE

"A Familiarity with the literature in any problem area helps the students discover what is already known, what others have attempted to find out, what methods to attack have been promising and disappointing and what problem remain to be solved. John W. Best (1959).

The phrase review of literature consists of two words "Review" and "Literature". The term literature refers to knowledge of a particular area of investigation in any discipline which includes theoretical, practical and its research studies. The term "Review" means to organize the knowledge in specific area of research to evolve an edifice of knowledge so that this study would be an addition to this field. Hence, the study of the related literature implies locating reading and evaluating reports of research as well as reports of casual observation and opinion, which are related to the individual planned research project. According to John W. Best "Practically all human knowledge can be found in books and libraries".

The study of relevant literature is an essential step to get a clear idea of what has been done with regard to the problem under study. A study of related literature implies locating, reading and evaluating reports of several research findings as well as reports of observations and opinions that are related to the individual's planned research report. Review of books, journals, dissertation and website relating to psychomotor and functional ability variables including studies done on persons with intellectual disability forms contents of this chapter. To achieve these objectives the investigator reviewed many books and research resources at Maruthi College of Physical Education, Ramakrishna Mission Vivekananda University and websites.

2.1 REVIEWS RELATED TO ADAPTED GAMES FOR INTELLECTUALLY CHALLENGED CHILDREN

Rmajayam (2017) conducted a study on influence of recreational games on selected psycho-motor variables of intellectually challenged children. 30 intellectually challenged children with age of 8 to 15 years for this study. They were assigned to two groups namely experimental group (n=15) who were given recreational games for 8 weeks, 5 days daily and the control group (n=15) continued their usual activities. Pre-test and post-test were administered in two selected psycho-motor variables, namely hand-eye coordination and reaction time. ANACOVA was used to find out the result which showed a significant improvement in the selected variables.

Alegesan (2016) conducted a study to develop and design adapted physical activities and adapted re-creative gadgets on psychomotor ability and functional abilities of intellectually challenged children. To gain the purpose, a total number of 100 intellectually disabled children with mild disability, 50 in the group of 12-13 years and 50 in the age group of 13-14 years were randomly selected. The pre-tests and post-tests after six months training in the adapted activities and adapted gadgets were conducted in all the psychomotor and functional abilities of intellectually challenged children. The study showed a significant improvement in the selected variables by both the groups. The study showed that the intellectually challenged children of both the age groups had significantly improved in all the psychomotor variables namely, Finger Dexterity, Manual Dexterity, Reaction Time, Arm Hand Steadiness and Multi Limb Coordination and Functional Ability. The study also showed that there is significant difference between the 12-13year age group and the 13-14 year age group in Finger Dexterity, Manual Dexterity, Arm Hand Steadiness

and Functional Ability. There is no significant difference between the two groups in Reaction Time and Multi Limb Coordination.

Kashi et al. (2015) conducted a study on the effect of "Kashi Practice" on the improvement of psycho-motor skills in people with Down syndrome. In this study 24 men with down syndrome between 21 and 43 years of age were randomly assigned as experimental group (n=14) and control group (n=14. The experimental group was given 12 weeks selected adapted physical activities (Kashi Practice) including balance training, strength and power training, muscular endurance and endurance training, psycho-motor training and skill training (adapted games) 3 days a week. Pre-test and post-test were administered with Bruininks Osertesky Test of Motor Proficiency (BOTMP). The result of the study showed a significant improvement on the psychomotor skills of experimental group.

Alsaif and Alsenay (2015) conducted a study on effect of interactive games on motor performance in children with spastic cerebral palsy. They investigated the effect of training with Nintendo Wii Fit games on motor performance in children with spastic cerebral palsy. In this study 40 children with cerebral palsy spastic diplegia aged 6-10 years diagnosed with level-3 functional capabilities according to the Gross Motor Classification System (GMFCS) were enrolled. Participants were divided randomly into equal groups: group I(experimental group n=20) practiced with the Nintendo Wii Fit game for at least 20 minutes daily for 12 weeks and group II (control group n=20) underwent no training. The Movement Assessment Battery for Children-2 (MABC-2) was used to assess motor performance, because it mainly involves motor tasks very similar to those involved in playing Nintendo Wii Fit games, e.g., goal-directed arm movements, balancing, and jumping. The results showed there were significant improvements in the subscales of

the motor performance test of those who practiced with the Nintendo Wii, while the control group showed no significant changes. They concluded the study by suggesting that using motion interactive games in home rehabilitation is feasible for children with cerebral palsy.

Indulkar Shilpa and Venugopal Reeta (2013) conducted a study on the effect of adapted exercise on psycho-motor variables in mentally challenged children. The purpose of the study was to determine the effect of 10 weeks adapted exercise program (calisthenics) on psycho-motor abilities (reaction time, speed of movement time and backward target throw) of mentally retarded children. Total 30 trainable mentally challenged children, experimental group (n= 15) and control group (n= 15) without multiple disabilities were selected for the study. The mean age of the groups was (12.33 ± 0.84) years. The experimental and control groups were tested for the three selected variables before and after physical education training program for 10 weeks. The result of the study was participation in physical education training program improved the three selected psycho-motor variables in mentally challenged children.

Jesudoss (2012) conducted a study on efficacy of selected mobility exercise and participation in special games on psychomotor abilities, functional abilities and game performance among intellectually disabled children of fewer than 14 years of age. The investigator selected 30 male students with mind and moderate intellectual disability and divided them randomly group I (n=10) underwent calisthenics and special games, group II (n=10) underwent aquatics and special games and group III (n=10) underwent yoga and special games. The subjects were tested on selected criterion variables prior and after 3 months post-test were conducted. The pre-test and post-test data collected from three groups on functional abilities (self-care, learning,

capacity of independent living), psycho-motor variables (static balance, hand-eye coordination, simple reaction time), and skill performance (bocce skill, badminton skill, table tennis skill) was statistically examined by ANACOVA. The result showed that there was a significant improvement in the selected criterion variables such as balance coordination, self-care and learning and also on the game skill. However there were no significant differences among the groups.

Golubovic et al. (2012) conducted a study on the effect of exercise on adapted physical fitness in children with intellectual disability. This study examined the effect of carefully designed physical exercise programs on the development of physical fitness in children with intellectual disability. The study sample consisted of 42 children with intellectual disability and 45 typically developing children. All the participants were assessed using Eurofit Test Battery. The results were analyzed in terms of participation in exercise program and level of intellectual functioning. While intellectually disabled children scored significantly lower on fitness tests when compared with typically developing children. The study revealed an association between degree of intellectual disability and physical fitness.

Tomporowski et al. (1985) conducted a study on the effects of exercise on the health intelligence, adaptive behavior of severely and profoundly mentally retarded adults: a systematic replication. Institutionalized severely and profoundly mentally retarded adults participated in a month program of various aerobic-type exercises. The effects of the treatment on physical fitness, intelligence and behavior of subjects were assessed. Fifty men and women were matched in pairs based on IQ, CA and sex and assigned randomly to an experimental (E) or control (C) group. The experimental group underwent aerobic-type exercise program for a month, 5 days a week and 3 hours daily. The exercise program included jogging, running, dance aerobics and

circuit training. The control group continued their normal institutional programs. The treatment produced significant improvement in the cardio vascular efficiency of subjects, however, no changes in intelligence or adaptive behavior were obtained. Although standardized tests reflected little improvement in psychological or behavioral variables due to treatment, subjective reports suggest that exercise may serve as more practical habilitation program for severely and profoundly mentally retarded individuals than those typically employed in institutional setting.

Boswell (1983) conducted a study on effect of adapted dance on dynamic skill and rhythmic skills of mentally retarded children. The subjects were 26 mentally retarded children of ages 8 to 13 years. The subjects were treated with either the 8 weeks adapted dance program or a movement exploration program of equal duration. Pre-test and post-test were taken on rhythmic balance by six balance beam tasks and stabiliometer performance and rhythmic skills by an auditory rhythmic perception test. Significant difference was found on the most difficult balance beam task included (a) sensitivity of this measure to initial change, and (b) opportunities for development of spatial orientation skills provided by the dance program.

Ebel (1971) conducted a study on effect of trampoline training program and other games practice on static and dynamic balance of educable mentally retarded children. The subjects were 42 children at the age of 14 to 16 years and they were divided in to experimental group of 23 (n=23) and control group of 19 (n=19) randomly. Pre-test and post-test were administered to both the groups. The experimental group was given trampoline and game practice in a sequential task routine for approximately 30 minutes a day, 5days a week, for a period of 6 weeks. The games activities consisted of volleyball, basketball, bowling, softball, social dance and physical activities with modification. The data were analyzed through t test

and result showed that both trampoline and games activities have significant effect on static balance and not effectual in development of dynamic balance of educable mentally retarded children.

2.2 REVIEWS RELATED TO YOGA FOR THE INTELLECTUALLY CHALLENGED CHILDREN

Ananda Ghosh and Srinivasan (2016) conducted a study on impact of adapted yoga with recreational games practice on selected bio motor variables of intellectually challenged children. The purpose of this study was to find out the impact of adapted yoga with recreational games practice on selected bio-motor variables of intellectually challenged children. For this study, 20 male intellectually challenged children were selected from Faculty of Disability Management and Special Education unit and TAT Kalanilayam Middle School, Coimbatore. The selected subjects were considered as two groups, 10 subjects in each group. TAT Kalanilayam Middle School boys were treated as experimental group. These 10 subjects had under gone adapted yoga with recreational games training designed by the researcher, five days a week for eight weeks. Faculty of Disability Management and Special Education unit boys were treated as control group. The control group did not participate in any specific training programme. The following variables were selected for the study such as bio-motor variables namely flexibility and agility. All subjects were tested prior to training and after completion of eight weeks of training on the selected variables. To analyse the collected data investigator used dependent 't' ratio to find out the significant difference between the mean of pre and post-test. Analysis of covariance (ANCOVA) was applied to determine the significance of mean difference between the two groups. The experimental group showed significant

difference than the control group after eight weeks of adapted yoga with recreational games training in all the selected variables.

Mahesh and Giridharan (2016) conducted a study on the effect of adapted yogic practices on selected physical fitness and physiological variables of individuals with cerebral palsy. Twelve subjects, their age group ranged from 14 to 21 years old were selected for this study. The subjects underwent adapted yoga training for a period of 6 weeks, 5 days a week an hour a day basis. Pre-test and post-test were taken on selected physical fitness and physiological variables. The collected data was analyzed with paired 't' ratio to test the objective of the study. The result showed significant difference on selected variables.

Srinivasan and Giridharan (2015) conducted a study on effect of adapted physical activities on selected psycho-motor variables of children with intellectual disability. 30 mild intellectually disabled students at the age of 14 to 21 years were selected for this study. The subjects were randomly assigned to adapted physical training and yoga practice group (n=15) and control group (n=15). The experimental group has undergone for a 6 week training session of 5 days a week an hour a day basis. Pre-test and post-test were administered on selected psycho-motor variables namely Finger Dexterity, Hand-eye Coordination and Reaction Time. ANACOVA was used to analyze the data. The result showed that the adapted physical activities had significantly improved the selected psycho-motor variables of children with intellectual disability.

Bhavani et al. (2012) conducted a study on immediate effect of mukha bhaskrika (a bellows type pranayama) on reaction time in mentally challenged adolescents. 34 mentally challenged adolescents studying in a school for Special Needs were recruited as they have been receiving yoga training once a week for more

than 3 years. Exclusion criteria were inability to either perform mukha bhastrika or to understand procedure for testing RT. Visual Reaction Time (VRT) and Auditory Reaction Time (ART) were measured using Reaction Time apparatus before and after nine rounds of mukha bhastrika and a control period of ten minutes of normal activities to rule out any test-retest practice effect. The result showed a significant effect on Visual Reaction Time (VRT) and Auditory Reaction Time (ART) in mentally challenged adolescents.

Telles and Naveen (1997) investigated the effect of yoga practices on mentally challenged subjects. The use of yoga for rehabilitation has diverse applications. Yoga practice benefited mentally handicapped subjects by improving their mental ability, also the motor co-ordination and social skills. Physically handicapped subjects had a restoration of some degree of functional ability after practicing yoga. Visually impaired children showed a significant decrease in their abnormal anxiety levels when they practiced yoga for three weeks, while a program of physical activity had no such effect. Socially disadvantaged adults (prisoners in a jail) and children in a remand home showed significant improvement in sleep, appetite and general well-being, as well as a decrease in physiological arousal. The practice of meditation was reported to decrease the degree of substance (marijuana) abuse, by strengthening the mental resolve and decreasing the anxiety. Another important area is the application of yoga (and indeed, lifestyle change), in the rehabilitation of patients with coronary artery disease. Finally, the possible role of yoga in improving the mental state and general well-being of HIV positive persons and patients with AIDS is being explored. It was noticed that the role of yoga for the rehabilitation has shown a significant result than physical exercise.

Uma (1989) conducted a one year controlled study with 90 mentally retarded children of mild, moderate and severe degree from four special schools in Banglore, India. Forty five subjects underwent yogic training for one academic year (5 hours in every week) with an integrated set of yogic practices, including breathing exercises and pranayama, sthilikarana vyayama loosening exercises), suryanamaskar, yogasanas and meditation. They were compared before and after yogic training with a control group of 45 mentally retarded children matched for chronological age, sex, IQ, socio-economic status and socio environmental background who were not exposed to yoga training but continued their usual school routine during that period. There was a highly significant improvement in the IQ and social adaptation parameters in the yoga group as compared to the control group. This study shows the efficacy of yoga as an effective therapeutic tool in the management of mentally retarded children.

Levi (1981) studied the leisure activities of mentally retarded adults. Interviews were conducted with 44 moderately and mild retarded adults about their leisure activities. Comparisons were made between these adults and non-retarded adults from the general population (Katz and Grunts 1976) who were matched for age and amount of schooling completed. Result showed that the retarded adults went out in the evenings and engaged in social visiting significantly less frequently than did the general population. The two groups did not differ significantly with regard to participation in a variety of day-time activities, such as sports and excursions, or in a variety of home activities.

2.3 REVIEWS RELATED TO PSYCHOMOTOR VARIABLES

Sharma et al. (2016) conducted a study on effect of adaptive yoga therapy in increasing hand steadiness among children with intellectual disability. The researchers selected 20 students with the age range from 12 to 18 years having fine motor deficits and assessed on the hand steadiness. The subjects were assigned to experimental group (n=10) and control Group (n=10) and Pre-test on hand steadiness was administered for both groups. The experimental group was treated with adaptive yoga therapy for 45 minutes daily, 5 days a week for 3 months and control group continued their usual routine. The post-test was taken and data was analyzed with statistical tools. The result showed a significant improvement in the hand steadiness in experimental group after adaptive yoga therapy.

Dibakar (2014) conducted a study on the effect of isolated and combined practice of recreational games and yogasanas on selected physical, physiological and psychomotor variables of intellectually challenged children. The investigator selected forty mild and trainable intellectually challenged children and their age ranged from 8 to 15 years and the subjects were randomly divided in to four groups of ten each. Group I underwent yogasana training program, Group II underwent recreational games training program, Group III underwent a combination of yogasana and recreational training program and Group IV acted as control group. The training programs were 12 weeks, 5 days a week and an hour daily. ANACOVA was applied to find out the significant difference among the groups. The result showed a significant difference on selected variables in each experimental group and among the four groups. There were no significant differences in control group.

Akila (2012) conducted a study on effect of adapted yogic practices on selected anthropometric, physiological and psychomotor variables of children with Down syndrome. Forty five Down syndrome children in the age group of 10 to 14 years were selected and randomly divided in to three groups. Group I (N=15) underwent regular yogic training for a period of 12 weeks. Group II (N=15) underwent adapted yogic training program for a period of 12 weeks and Group III (N=15) acted as control group. Pre, mid and post tests were conducted in body weight, waist circumference, resting pulse rate, peak expiratory flow, finger dexterity, haemoglobin level and total leucocytes count for the groups. ANCOVA was applied to find out the significant differences among the groups. The result of the study showed a significant improvement on variables in both yogic and adapted yogic groups and no changes in control group.

Sivasankar (2102) conducted a study to find out the effect of play activities on selected psychological variables and general motor ability components of intellectually challenged children. Forty male intellectually challenged children, their age ranged 10 to 15 years with mild retardation were selected for this study. The subjects were randomly assigned as group I (experimental N= 20) and group II (control N=20). The experimental group underwent a selected play activity training program for 12 weeks, 3 days a week, an hour a day basis. For collecting the data standardized tests were conducted before the training (pre-test), after 6 weeks (mid-test) and after 12 weeks (post-test) of training for both groups on selected psychological variables namely span of attention, memory, visual perception (Right and Left) and general motor ability components such as coordination, flexibility and muscular power. ANOVA and ANACOVA were used to analyse the data. The result

showed a significant improvement on selected variables in experimental group and control group did no differences.

Amudhan and Ganesh (2011) conducted a study on impact of yogic practices on psycho-motor ability of intellectually disabled children. The investigator randomly selected 20 intellectually disabled children and assigned them as experimental group (n=10) and control group (n=10). Experimental group was given 6 weeks yoga practices 2 hours a daily, 5 days a week. Pre-test and post-test were taken on psychomotor variable finger dexterity on both groups. Paired-'t' test statistical technique was employed to find out the influence of yogic practice on psycho-motor variable (finger dexterity) in intellectually disabled children. The result showed a significant improvement on finger dexterity in experimental group as a result of 6 weeks selected yogic practice.

Ganeshkumar (2010) conducted a study to compare the effect of physical training, asana practice and football participation on physiological and psychomotor variables of intellectually challenged children. Sixty four intellectually challenged children with the age of 15 to 18 years were selected for this study. The subjects were randomly assigned to four equal groups of 16. Group I (physical training), Group II (asana training), Group III (football participation) and control group. Experimental groups underwent 12 weeks of training programs. Pre-test and post-test were conducted on physiological and psychomotor variables namely resting pulse rate, respiratory rate, blood pressure, span of attention, visual perception, reaction time and hand-eye coordination. To analyze the data dependent 't' test was used to find out the difference between the Pre-test and Post-test mean for groups separately. ANCOVA was used to find out the significant differences among the groups. The result showed

a significant improvement on physiological and psychomotor variables in all three experimental groups. The control group showed no difference.

Hezkiah (2005) developed adapted physical activities for the intellectually challenged adolescents. This paper gives an overview of general psychomotor behavior and characteristics and their focuses on adolescents with intellectual disabilities. Psychomotor interventions and educational programming suggestion are offered. When compared with adolescents with disabilities, adolescents with intellectual disability demonstrate low physical fitness and perceptual motor difficulties, which affect their abilities to perform motor skills. The limitations impact their motivation and contribute to limited opportunities for regular participation in movement, physical activity and sports which in turn affect their ability to develop and improve in these important areas of growth and development.

Necmiye and Erbahceci (2001) conducted a study to compare the parameters of Reaction Time on mentally retarded and healthy children and also to find out the effect of sports on Reaction Time. The study consisted of 20 non-retarded (Group I), 20 non-sporting trainable mentally retarded (Group II) and 20 sporting mentally retarded (Group III) at an average age of 15 years. The audio visual Reaction Time of both non-retarded and retarded children was measured. It was found that Reaction Time is lower in trainable mentally retarded children. It can be concluded that sport is a valid and effective means of training which affects the Reaction Time positively.

Rintala et al. (1998) compared the effectives of two approaches to movement intervention for children with a combination of language and movement difficulties- a specialist approach labeled psychomotor training and PE lessons from trained PE teachers. From a sample of 76 children formally classified as suffering from developmental language disorder, 54 (71%) fell below the 15^{th} percentile on a test of

motor competence. These 54 children were divided into two groups, one of whom received a 19 weeks psychomotor training program and the other did regular PE lessons. Although all children regardless of the type of intervention made progress the differences between these two approaches were small. It was concluded that, the children in the psychomotor training program did improvement more than those who followed the regular physical education curriculum on resting pulse rate and Gross Motor Development.

Kioumourtzoglou et al. (1994) conducted a study on selected motor skills of mentally retarded and anon-retarded individuals. The aim of the study was to examine whether mentally retarded individuals show a specific performance deficit on measures of reaction time, aiming and dexterity. 23 mentally retarded adolescents and two control groups of 22 non-retarded persons of the same mental age and 20 non-retarded persons of the same chronological age were tested. Motor performance measures for retarded persons were considerably longer that of non-retarded persons of the same chronological age and of the same mental age. Only time of finger dexterity with short pins was longer for the retarded than for the non-retarded adolescents of the same mental age. Reaction times across groups were faster for the sound than for the light signal. No difference in RT for fine movement was observed. Differences among the various motor performance measures for the retarded and non-retarded subjects are confirmed.

DePaepe and Ciccaglione (1993) studied the dynamic balance measure for persons with severe and profound mental retardation. The purpose of the study was to probe into the reliability and validity measurement of dynamic balance for individuals with IQs below 29. 91 subjects were asked to complete the Papesy -DePaepe test and the Bruin inks test according to each test's protocol. Correlations of add-even scores

produced a reliability of 0.98 for the Papesy-DePaepe test. Current validity was indicated by a Pearson product moment correlation of 0.64 between the two tests. Subsequent 3 X 2 X 2 multivariate analyses of variance confirmed a significant difference between the two tests and that retardation was associated with balance performance although age and gender were not.

Gleser et al. (1992) analyzed physical and psychological benefits of modified judo practice for blind and mentally retarded children through a pilot study. A modified form of judo training was practiced by a class of 7 blind, mentally retarded children with associated neuropsychiatric disturbances. The biweekly training program lasted for 6 months. Analysis indicated improvements in physical fitness, motor skills, and psychological attitude. The authors concluded that a modified form of judo can be used as a therapeutic educational and recreational tool for multiply handicapped children.

McKinlay et al. (1987) investigated the motor coordination of children with mild mental handicaps. Motor coordination testing using Gubbay's test was carried out on 885 mainstream school children, broadly representative of national social class distribution and on 482 children attending Greater Manchester Schools for children with moderate learning difficulties. In spite of limited reliability of the tests considerable differences were demonstrated suggesting that mildly mentally retarded children are also retarded in motor development. This has clear implication for educational planning whether such children are to be educated in special or mainstream schools in future.

Amemiya (1982) analyzed the simple reaction time in mentally retarded and non-retarded children matched on mental age by examination on inter trial interval as a variable. The simple reaction time (RTs) in mentally retarded children and non-

retarded children matched on mental age (MA) were analyzed and the relationship between mental ability and reaction time performance was discussed. RTs in both groups were obtained under 3 temporal conditions. In experiment I, it was found that the shortest inter-trial interval (ITI), the shorter RTs in both groups and (b) in the retarded group, RTs of MA5 and MA6-8 subjects were significantly different, presumably because of motor and/or sensory disabilities in the younger subjects, irrelevant to mental disability. In experiment II, different response characteristics were found for the both groups under the complex temporal condition. Retarded subjects showed remarkably slow RT only on those trials in which a long ITI was followed by a short ITI. Non-retarded subjects had remarkable variation in RT over all trials. It was confessed that different psycho-behavioral characteristics of the subjects of both groups were reflected in the different response tendencies that were observed.

Morrision and Newcomes (1975) conducted a study on the effect of directive vise nondirective play therapy with institutionalized mentally retarded children. 15 institutionalized retarded children were randomly assigned to eleven sessions of directive play therapy (N=5), nondirective play therapy (N=5) and control group (N=5). Student nurses were therapists. The Denver Developmental Screening Test was administered before and after treatment. For the fine motor and personal-social scales, a significant interaction effect ($p<.o5$) was found between treatment groups and measurement period (pre vise post). The interaction tented to support the hypothesis that plays therapy was effective in increasing developmental level but not the hypothesis directive therapy was more effective than nondirective therapy.

2.4 REVIEWS RELATED TO FUNCTIONAL ABILITY VARIABLES

Rani and Keshwal (2016) conducted a study on the effect of co-curricular activities on development of social skills of children with intellectual disability. Eight intellectual disabled children with IQ ranging from 35 to 49 of age of 9 to 12 were selected for this study. Social skills were assessed by Social Skill Assessment Tool developed by researcher. The subjects were given some activities like dance for 10 sessions, play (throwing ball into bucket) for 5 sessions and thumb painting for another 5 sessions and pre-test and post-test were administered. The Statistical Analysis showed that there is a highly significant effect of co-curricular activities on development of social skills of children with intellectual disability.

Rad and Moghadam (2014) conducted a study to examine the effect of school games on quality of life of intellectually disables 10-14 year old girls. The components of quality of life were physical function, social function, cognitive function and emotional function. 80 intellectually disabled 10-14 year old girls were selected as subjects and were randomly assigned to experimental group (n=40) and control group (n=40). Experimental group performed selected school games for 12 weeks, with 3 days a week for an hour daily. Pre-test and post-test were conducted to collect data using TNO-AZC Pre-School Quality of Life (TAPQOL) and were analyzed in SPSS using the Kolmogorov-Smirnov test, independent samples t-test and dependent samples t-test. ANOVA was to analyze the data. The result showed that there is a significant positive effect on quality of life (physical function, social function, cognitive function and emotional function) of intellectually disabled girls of 10 to 14 year old.

Dresen et al. (2010) conducted a study on the effects of a physical training program on physical efficiency, work capacity and classroom attention of handicapped children. Eleven motorically handicapped children (between 8 and 14 years old were selected for this study. The subjects were assigned as experimental group (N=6) and control group (N=5) and the experimental group underwent a training program with an intensity of 160 heart beats per minutes for a period of 10 weeks. Physical efficiency and physical work capacity scores were calculated from the obtained relationships of respectively O2 uptake versus workload and O2 uptake versus heart rate, determined during a submaximal bicycle ergo meter test. Attention in the class room was measured by means of a previously developed observation instrument. At the end of training program a significant increase in physical efficiency and classroom attention scores was demonstrated for the children in the experimental group. It is suggested that an intensification of activities during the scheduled physical education lesson can have positive effects on both physical and psychological variables in mortorically handicapped children.

Samuel (2010) conducted a study on the effect of selected mobility exercise and participation in special games on psychomotor abilities, functional abilities and games performance among intellectually disabled children of various age groups. Ninety intellectually disabled children were selected and their age groups were ranged from under 14 years, under 16 years and under 18 years. The subjects were randomly assigned to three equal groups of thirty each namely Group I (calisthenics and special games) Group II (aquatics and special games) and Group III (yoga and special games). All the 3 experimental groups underwent 12 weeks of training program. Pre-test and post-test were administered on psychom0otor variables namely balance, coordination, and reaction time, functional abilities and performance in special games

namely bocce, badminton skill test and table tennis skill test. To analyze the data dependent 't' test was used to find out the differences between the pre-test and post-test means for each groups separately. ANACOVA was used to find out the significant differences among the groups. The result showed a significant improvement on the variables in all the three groups and also showed significant improvements in fewer than 18 years categories than the other two age groups on psychomotor abilities, functional abilities and special games participation.

Mazzoni et al. (2008) conducted a study on the effect of indoor wall climbing on self-efficiency and self-perceptions of children with special needs. The impact of a six week indoor wall climbing on the perceptions of self for children with special need aged 6-12 years was explored. 46 subjects were selected and randomly assigned as experimental group (girls, N=4; boys, N= 19) and control group (girls, N= 5; boys, N= 18). Belayers' and children's perceptions of efficiency were measured using specifically designed questionnaires and perceptions of competence and global self-worth were measured using Harte's (1985) Self-perception Profile for children for participants with an adaptive age of 8 years or higher. Children's self-efficiency and Belayer's ratings of children's efficacy improved significantly. The children's judgments of their athletic and social competence and global self-worth, however, did not change over time or differ from the wait-listed control group. These results suggested that it is likely that many experiences that enhance self-efficacy may be needed to improve self-perception.

Carmeli et al. (2005) analyzed the effect of physical training on well-being in adults with mild intellectual disability. The aim of this study was to investigate the effect of physical training on balance, strength and general well-being in adult people with intellectual disability. This study evaluated how physical training can effect

physical and psychological change among elder adults with mild intellectual disability. Participants consisted of non-randomly selected groups with intellectual disability (N=22), between 54 and 56 years of age. Clinical balance functional tests were measured by a modified Time Get-Up and Go test and Functional Reach Test. Knee muscles strength was measured on a Biodex Dynamometer. The self-concept of well-being was measured by direct interview with a questionnaire consisting of 37 structural statements. Physical training program was conducted three times a week for six consecutive months. Multiple regression analyses suggested positive relations between balance, muscle strength, well-being and physical training between the experimental group and control group. This positive relation can support the role and importance of physical training to improve loco motor performance and perception of well-being among elder adults with intellectual disability.

Lotan et al. (2004) conducted a study to find out the effect of a short-term daily treadmill intervention on physical functioning and functional ability of children with intellectual disability. Fifteen intellectually disability children on a functional level of 7-14 months used a treadmill daily for 2 months. The findings indicated a most significant improvement in the level of physical fitness. In further examination a year after intervention terminated showed a return to pre intervention pulse at rest values.

Jonathan et al. (2003) examined the relations among components of a physical activity program, Special Olympics (SO) and the self-concepts (i.e., perceived physical competence, social acceptance and general self-worth), adaptive behavior and psychomotor (hand-eye coordination) of individuals with developmental disabilities, between 9 and 43 years of age, and their parents. Participants' self-concepts and adaptive behaviors were measured both by direct interview and parental

report. The psychomotor test was administered directly on participants. Examined program components consisted of the length of the time affiliated to the organization, number of competitions attended, hours spent in training of sports and of medals obtained. Multiple regression analysis suggested relations between specific components of SO and participants' self-concepts, adaptive behaviors and psychomotor.

2.5 SUMMARY

The reviews of related literature facilitated the investigator to select relevant topics and variables. Further the literature support the investigator to setting the adapted games practices and asanas training for people with intellectual disability on psychomotor and functional ability variables. The latest literature also assisted the investigator to keep his findings with regard to the problem. Further the literature collected in the study was also helped the research scholar to have understandings the similar areas. The reviews were presented under four areas namely adapted games, yoga asana for intellectually challenged people, psychomotor variables and functional ability.