Chapter V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

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

The subjects for this study were selected at random from Pratheeksha Bavan, an Institute for mentally retarded individuals, situated in Irinjalakuda, Kerala. There were fifty four educable mentally retarded children (EMR) and forty eight trainable mentally retarded children (TMR) who were selected as subjects on the basis of Stanford and Binnet Intelligence test scores available from the school records.

The educable mentally retarded children (EMR) ranged in age from ten to fifteen years with mean age of 12.37 years. The trainable mentally retarded children (TMR) ranged in age from ten to fifteen years with the mean age of 12.31 years. The IQ of EMR subjects
ranged from 54 to 67 and that of the TMR subjects ranged from 38 to 51.

The experimental design adopted for this study was random group design. The fifty-four EMR subjects were randomly assigned to three groups – Group-A (EMR – Control, n = 12 males and 6 females); Group-B (EMR – Experimental – I, n = 13 males and 5 females); Group-C (EMR – Experimental – II, n = 14 males and 4 females). The same procedure was used to classify the forty-eight TMR subjects to Group D (TMR – Control, n = 11 males and 5 females); Group E (TMR – Experimental – I, n = 12 males and 4 females); Group F (TMR – Experimental – II, n = 13 males and 3 females). Experimental Group-I of both the categories i.e. EMR and TMR underwent the adapted physical education programme alone, where as Experimental Group-II of both the categories i.e. EMR and TMR underwent the adapted physical education programme with reward. The control group of both categories spent same amount of time in free play and other teacher directed recreation activities. The pre-tests were administered before the experimental treatment and all
the groups were post tested on the criterion variables at the conclusion of the 24-week experimental period.

The test items chosen as criterion measures were found to be most reliable and widely used all over the world for assessing motor ability, particularly for mentally retarded. The following test items were selected from Basic Motor Ability Test (BMAT): Chair push-ups (arm and shoulder strength), standing broad jump (explosive strength of the thigh and lower leg muscles), back and hamstring stretch (flexibility of the back and hamstring muscles), and the following test items were selected from Bruininks – Oseretsky test of Motor Proficiency: Running speed and agility (speed and agility), Standing on preferred leg on balance beam (static balance), Walking forward on balance beam (dynamic balance), Jumping up and clapping hands (bilateral coordination), Jumping up and touching heels with both hands (bilateral coordination), Sit-ups (abdominal strength), Catching a tossed ball with both hands (upper limb coordination), Throwing a ball at a target with preferred hand (upper limb coordination).
The reliability of data was ensured by establishing the instrument reliability, tester reliability, reliability of selected tests and subjects reliability.

Through the review of literature and promising practices in the field, and also with the help of instructional resource materials, the investigator developed a draft of 24 week adapted physical education programme. The developed programme was examined by three experts and on the basis of their suggestions, and recommendations, the necessary changes were made. The revised programme was again sent to the experts for their final approval. On the basis of the feedback received a final draft of the programme was made and administered on the experimental groups.

The adapted physical education programme was implemented for a period of 24 weeks excluding the period utilized for initial and final testing of criterion variables.

In conducting the initial and final tests and for the implementation of the adapted physical education programme the help of the physical education teachers of the concerned institution.
physical education teachers of near by schools and the colleagues of the research scholar was sought.

The prescribed 24 week adapted physical education programme schedule was applied to the four experimental groups by the research scholar. The administration of the programme was as follows.

Experimental group-I of both the categories i.e. Educable and Trainable Mentally Retarded subjects underwent the prescribed programme schedule.

Experimental group-II of both the categories i.e. Educable and Trainable Mentally Retarded subjects underwent the programme and rewards were offered to the subjects who achieved the fixed targets and goals.

Control groups of Educable and Trainable Mentally Retarded subjects spent the same amount of time participating in free play and other teacher directed recreational activities.
Rewards Offered:

Tangible rewards like toffee, candy, pencil, small toys, etc. were offered to motivate the subjects.

The programme was implemented on the experimental groups for 24 weeks during regular school hours for a period of 45 minutes a day, 3 days per week. The step method of increasing load on the basis of principle of progression of load was used to create stronger stimulus to the organism for the physiological adaptation of various systems of the body.

Analysis of covariance (ANCOVA) was computed for each variable to determine the effect of 24 week adapted physical education programme on educable and trainable mentally retarded subjects. The level of significance was set at .05 to check the 'F' ratio obtained by ANCOVA. In using Analysis of Covariance the F value = 3.18 was required for significance at .05 level of confidence for 2 and 50 degrees of freedom for educable mentally retarded. Similarly, F = 3.21 was required for significance at .05 level of confidence for 2 and 44 degrees of freedom for trainable mentally retarded.
In as much as three groups were employed in the experiment, when ever the obtained F value was found to be significant between final adjusted means, the post-hoc test of LSD was applied to find out the significant difference between the paired adjusted final means.

The result of ANCOVA indicated that there were significant effects of 24 week adapted physical education programme with and without reward on all selected motor performance variables except one variable i.e. standing on preferred leg on balance beam of experimental groups of educable mentally retarded subjects, since the obtained F value for chair push-ups (4.88), standing broad jump (3.62), back and hamstring stretch (10.50), running speed and agility (28.72), walking forward on balance beam (16.84), jumping up and clapping hands (41.86), jumping up and touching heels with both hands (19.17), sit-ups (17.01), catching a tossed ball with both hands (18.57), and throwing a ball at a target with preferred hand (17.82) were greater than the F value = 3.18 required to be significant at .05 level with 2 and 50 degrees of freedom. But, in the case of standing on
preferred leg on balance beam the obtained F value = (3.03) was less than the required F value = 3.18.

The findings pertaining to post-hoc tests indicated that there were significant differences in performance between the experimental and control groups in all the variables. There were significant difference between the experimental group-I and experimental group-II of educable mentally retarded subjects in back and hamstring stretch, running speed and agility, jumping up and clapping hands, catching a tossed ball with both hands, throwing a ball at a target with preferred hand.

The findings also revealed that the effect of 24 week adapted physical education programme with reward was better than without reward programme on educable mentally retarded individuals.

The results of Analysis of Covariance indicated that there were significant effect of 24 week adapted physical education programme with and without reward on all the selected motor performance variable except one variable i.e. walking forward on balance beam of the experimental groups of trainable mentally retarded subjects, since
the obtained F value for chair push-ups (15.56), standing broad jump (26.82), back and hamstring stretch (20.70), running speed and agility (7.72), standing on preferred leg on balance beam (11.21), jumping up and clapping hands (31.77), jumping up and touching heels with both hands (16.36), sit-ups (13.78), catching a tossed ball with both hands (9.64), throwing a ball at a target with preferred hand (12.53) were greater than the required F value = 3.21, to be significant at .05 level of confidence with 2 and 44 degrees of freedom. But in the case of walking forward on balance beam the obtained F value = 3.16 was less than the required F value = 3.21.

The findings pertaining to post-hoc tests indicated that there were significant differences between the experimental group-II (rewarded group) and control group in all the variables. Significant difference existed between the experimental group-I (without reward group) and control group in all the variables except the following three variables. They were running speed and agility, standing on preferred leg on balance beam, and catching a tossed ball with both hands. There also existed significant difference between the
experimental group-II (with reward group) and experimental group-I (without reward group) in the following variables. They were, standing broad jump, running speed and agility, standing on preferred leg on balance beam, sit-ups and catching a tossed ball with both hands.

The findings also revealed that the effect of 24 week adapted physical education programme with reward was superior to without reward programme on trainable mentally retarded individuals.

**Conclusions**

Within the limitations of the present study and on the basis of the findings, the following conclusions were considered appropriate and drawn.

1. The 24 week adapted physical education programme with and without reward significantly contributes to the improvement of motor performance of educable and trainable mentally retarded individuals.
2. The 24 week adapted physical education programme with
reward is better than without reward programme for the
improvement of motor performance of educable and trainable
mentally retarded individuals.

3. There is no significant positive effect of training on static
balance (standing on preferred leg on balance beam)
performance of educable mentally retarded subjects.

4. There is no significant positive effect of training on Dynamic
balance (walking forward on balance beam) performance of
trainable mentally retarded subjects.

Recommendations

In the light of the conclusions drawn, the following
recommendations are made:

1. The 24 week adapted physical education programme developed
   by investigator can be used to improve the motor performance
   of educable and trainable mentally retarded individuals aged 10
to 15 years.
2. The 24 week adapted physical education programme developed by the investigator can be used with a little more emphasis laid on exercises which promote balance, to develop the balance performance of educable and trainable mentally retarded individuals of age ranging from 10 to 15 years.

3. It is recommended that a similar study may be carried out separately for male and female mentally retarded individuals as subjects.

4. It is recommended that a similar study may be carried out for different age groups.

5. It is also recommended that a similar study may be conducted by involving bigger number of subjects.

6. It is recommended that a similar study may be conducted using different motivational techniques.

7. Regulations should be made to ensure that the adapted physical education programme is an integral part of the special education curriculum.
8. It is also recommended that adequately professionally prepared adapted physical education teachers are to be placed in the special school system of this country to deliver quality assured physical education to the mentally retarded.