CHAPTER 6

SUMMARY, CONCLUSIONS AND SUGGESTIONS

6.1 THE STUDY IN RETROSPECT
6.2 CONCLUSIONS BASED ON THE FINDINGS OF THE STUDY
6.3 TENABILITY OF THE HYPOTHESES
6.4 EDUCATIONAL IMPLICATIONS OF THE STUDY
6.5 SUGGESTIONS FOR FURTHER RESEARCH
INTRODUCTION

In the light of the interpretation of data, conclusions and generalizations are formulated. This final step of research process demands critical and logical thinking, in summarizing the findings of the study and pairing them with the hypotheses formulated in the beginning. A preliminary analysis of the scores of the special variables was attempted, to answer the research questions posed and tested the hypotheses formulated for the study. This chapter presents the summary of the study. It briefly outlines the various aspects of the study conducted, arrives at conclusions based on the findings, tests the tenability of the hypotheses formulated, gives the educational implications of the study and presents suggestions for further research.

6.1 THE STUDY IN RETROSPECT

The study was an attempt to determine the effectiveness of Mental Modelling based on Multiple Strategy Instruction on variables like Reading Competency in English, Reading Habit and Attitude towards English of Upper Primary School Students. Three hypotheses were formulated for the study.

1. Mental Modelling based on Multiple Strategy Instruction will be significantly more effective than Activity Oriented Method of Instruction in enhancing Reading Competency in English among Upper Primary School Students
   i. for the Total Sample;
   ii. for the Gender Sub Samples;
   iii. for the Locale Sub Samples;
   iv. for the Sub Samples based on Management of Schools;
   v. for the Print Skills, viz. Phonemic Awareness, Phonics, Spelling, and Fluency;
   vi. for the Meaning Skills, viz. Vocabulary, Background Knowledge, and Reading Comprehension.
2. Mental Modelling based on Multiple Strategy Instruction will be significantly more effective than Activity Oriented Method of Instruction in improving **Reading Habit** among Upper Primary School Students.

3. Mental Modelling based on Multiple Strategy Instruction will be significantly more effective than Activity Oriented Method of Instruction in improving **Attitude towards English** among Upper Primary School Students.

Effort was taken to realize **three objectives**, viz.

1. to compare the effectiveness of Mental Modelling based on Multiple Strategy Instruction and Activity Oriented Method of Instruction in enhancing **Reading Competency in English** among Upper Primary School Students
   i. for the Total Sample;
   ii. for the Gender Sub Samples;
   iii. for the Locale Sub Samples;
   iv. for the Sub Samples based on Management of Schools;
   v. for the Print Skills, viz. Phonemic Awareness, Phonics, Spelling and Fluency;
   vi. for the Meaning Skills, viz. Vocabulary, Background Knowledge and Reading Comprehension.

2. to compare the effectiveness of Mental Modelling based on Multiple Strategy Instruction in improving **Reading Habit** among Upper Primary School Students.

3. to compare the effectiveness of Mental Modelling based on Multiple Strategy Instruction in improving **Attitude towards English** among Upper Primary School Students.
METHODOLOGY

Experimental Method was employed for the present study. The Experimental Method was adopted to explore the effectiveness of Mental Modelling based on Multiple Strategy Instruction for enhancing Reading Competency in English among Upper Primary School Students. The study also intended to assess the effectiveness of Mental Modelling based on Multiple Strategy Instruction in improving Reading Habit as well as Attitude towards English among Upper Primary School Students. The research design adopted for the study was the Pre-Test Post-Test Non Equivalent Groups Design.

Purposive Sampling Technique was employed for gathering data for the experiment. The Sample consisted of 284 Upper Primary School Students of Standard VI studying the State Syllabus of Kerala. Due consideration was given to Gender, Locale of School, and Management of School while selecting the sample of Upper Primary School Students.

The independent variables involved in the study were Mental Modelling based on Multiple Strategy Instruction and the Activity Oriented Method of Instruction. The dependent variables of the study were Reading Competency, Reading Habit, and Attitude towards English. The extraneous variables used in the study were Gender, Locale of School, and Management of School.

The tools and materials used for the study were: 1. General Data Sheet, 2. Raven’s Coloured Progressive Matrices, 3. Test on Reading Competency in English, 4. Inventory on Reading Habit, 5. Scale on Attitude towards English, 6. Instructional Plans using Mental Modelling based on Multiple Strategy, and 7. Instructional Plans using Activity Oriented Method.
The statistical techniques employed for analysis of data include Test of Significant Difference between Means (t-test) and Tests of Variances, viz. Analysis of Variance (ANOVA) and Analysis of Covariance (ANCOVA).

6.2 CONCLUSIONS BASED ON THE FINDINGS OF THE STUDY

The major conclusions that evolved out of the study are:

**Conclusion 1:** The Reading Competency in English of Upper Primary School Students is significantly enhanced by Mental Modelling based on Multiple Strategy Instruction as compared to Activity Oriented Method of Instruction for the Total Sample, for the Gender Sub Samples, for the Locale Sub Samples, for the Sub Samples based on Management of Schools, for the Print Skills and for the Meaning Skills.

This conclusion is arrived at based on the following findings.

**(i) For the Total Sample**

**6.2.1** The Mean Post-Test Scores of Students in the Experimental and Control Groups differ significantly \((t=5.32, P<0.01)\). The Experimental Group is superior to the Control Group \((M_E=48.82, M_C=40.00)\).

**6.2.2** The Mean Gain Scores of Students in the Experimental and Control Groups differ significantly \((t=22.65, P<0.01)\). The Experimental Group is superior to the Control Group \((M_E=13.62, M_C=5.54)\).

**6.2.3** The Analysis of Variance of the Pre- and Post-Test Scores of Students in the Experimental and Control Groups are \(F_x=0.23, P>0.05\) and \(F_y=20.81, P<0.01\) respectively. This shows that the
Post-Test Scores of the Experimental and Control Groups differ significantly.

6.2.4 The Analysis of Co-Variance of the Pre- and Post-Test Scores of Students in the Experimental and Control Groups ($F_{YX}=91.56$, $P<0.01$) shows that there is significant difference between the Means of the Post-Test Scores of the two groups.

6.2.5 The Adjusted Y Means of the Post-Test Scores of Students in the Experimental and Control Groups differ significantly ($t=9.57$, $p<0.01$). The Experimental Group is superior to the Control Group ($M_{YXE}=48.43$, $M_{YXC}=40.98$).

(ii). For the Gender Sub Samples

A. Boys

6.2.6 The Mean Post-Test Scores of Students in the Experimental and Control Groups differ significantly ($t=3.25$, $P<0.01$). The Experimental Group is superior to the Control Group ($M_{E}=46.89$, $M_{C}=38.06$).

6.2.7 The Mean Gain Scores of Students in the Experimental and Control Groups differ significantly ($t=10.31$, $P<0.01$). The Experimental Group is superior to the Control Group ($M_{E}=14.16$, $M_{C}=6.06$).

6.2.8 The Analysis of Variance of the Pre- and Post-Test Scores of Students in the Experimental and Control Groups are $F_{X}=0.10$, $P>0.05$ and $F_{Y}=12.41$, $P<0.01$ respectively. This shows that the Post-Test Scores of the Experimental and Control Groups differ significantly.

6.2.9 The Analysis of Co-Variance of the Pre- and Post-Test Scores of Students in the Experimental and Control Groups ($F_{YX}=101.38$, $P<0.01$).
Conclusions and Suggestions

P<0.01) shows that there is significant difference between the Means of the Post-Test Scores of the two groups.

6.2.10 The Adjusted Y Means of the Post-Test Scores of Students in the Experimental and Control Groups differ significantly (t=10.07, P<0.01). The Experimental Group is superior to the Control Group (M_{YXE}=46.51, M_{YXC}=38.44).

B. Girls

6.2.11 The Mean Post-Test Scores of Students in the Experimental and Control Groups differ significantly (t=4.33, P<0.01). The Experimental Group is superior to the Control Group (M_{E}=50.91, M_{C}=41.64).

6.2.12 The Mean Gain Scores of Students in the Experimental and Control Groups differ significantly (t=11.83, P<0.01). The Experimental Group is superior to the Control Group (M_{E}=13.03, M_{C}=5.09).

6.2.13 The Analysis of Variance of the Pre- and Post-Test Scores of Students in the Experimental and Control Groups are F_X=0.45, P>0.05 and F_Y=18.11, P<0.01 respectively. This shows that the Post-Test Scores of the Experimental and Control Groups differ significantly.

6.2.14 The Analysis of Co-Variance of the Pre- and Post-Test Scores of Students in the Experimental and Control Groups (F_{YX}=137, P<0.01) shows that there is significant difference between the Means of the Post-Test Scores of the two groups.

6.2.15 The Adjusted Y Means of the Post-Test Scores of Students in the Experimental and Control Groups differ significantly (t=11.72, P<0.01). The Experimental Group is superior to the Control Group (M_{YXE}=50.22, M_{YXC}=42.33).
Conclusions and Suggestions

(iii) For the Locale Sub Samples

A. Urban School Students

6.2.16 The Mean Post-Test Scores of Students in the Experimental and Control Groups differ significantly ($t=3.69$, $P<0.01$). The Experimental Group is superior to the Control Group ($M_E=49.74$, $M_C=41.51$).

6.2.17 The Mean Gain Scores of Students in the Experimental and Control Groups differ significantly ($t=11.17$, $P<0.01$). The Experimental Group is superior to the Control Group ($M_E=12.94$, $M_C=5.08$).

6.2.18 The Analysis of Variance of the Pre- and Post-Test Scores of Students in the Experimental and Control Groups are $F_X=0.03$, $P>0.05$ and $F_Y=13.38$, $P<0.01$ respectively. This shows that the Post-Test Scores of the Experimental and Control Groups differ significantly.

6.2.19 The Analysis of Co-Variance of the Pre- and Post-Test Scores of Students in the Experimental and Control Groups ($F_{YX}=125.92$, $P<0.01$) shows that there is significant difference between the Means of the Post-Test Scores of the two groups.

6.2.20 The Adjusted Y Means of the Post-Test Scores of Students in the Experimental and Control Groups differ significantly ($t=11.22$, $P<0.01$). The Experimental Group is superior to the Control Group ($M_{YXE}=49.55$, $M_{YXC}=41.70$).
B. Rural School Students

6.2.21 The Mean Post-Test Scores of Students in the Experimental and Control Groups differ significantly \((t=2.96, \ P<0.01)\). The Experimental Group is superior to the Control Group \((M_E=47.91, \ M_C=39.78)\).

6.2.22 The Mean Gain Scores of Students in the Experimental and Control Groups differ significantly \((t=6.29, \ P<0.01)\). The Experimental Group is superior to the Control Group \((M_E=14.28, \ M_C=7.72)\).

6.2.23 The Analysis of Variance of the Pre- and Post-Test Scores of Students in the Experimental and Control Groups are \(F_X=0.47, \ P>0.05\) and \(F_Y=8.99, \ P<0.01\) respectively. This shows that the Post-Test Scores of the Experimental and Control Groups differ significantly.

6.2.24 The Analysis of Co-Variance of the Pre- and Post-Test Scores of Students in the Experimental and Control Groups \(F_{YX}=40.51, \ P<0.01\) shows that there is significant difference between the Means of the Post-Test Scores of the two groups.

6.2.25 The Adjusted Y Means of the Post-Test Scores of Students in the Experimental and Control Groups differ significantly \((t=6.38, \ P<0.01)\). The Experimental Group is superior to the Control Group \((M_{YXE}=47.05, \ M_{YXC}=40.65)\).

(iv) Management of School Sub Samples

A. Government School Students

6.2.26 The Mean Post-Test Scores of Students in the Experimental and Control Groups differ significantly \((t=4.19, \ P<0.01)\). The
Conclusions and Suggestions

Experimental Group is superior to the Control Group ($M_E=52.95$, $M_C=44.36$).

**6.2.27** The Mean Gain Scores of Students in the Experimental and Control Groups differ significantly ($t=11.49$, $P<0.01$). The Experimental Group is superior to the Control Group ($M_E=13.92$, $M_C=5.84$).

**6.2.28** The Analysis of Variance of the Pre- and Post-Test Scores of Students in the Experimental and Control Groups are $F_X=0.07$, $P>0.05$ and $F_Y=17.36$, $P<0.01$ respectively. This shows that the Post-Test Scores of the Experimental and Control Groups differ significantly.

**6.2.29** The Analysis of Co-Variance of the Pre- and Post-Test Scores of Students in the Experimental and Control Groups ($F_{YX}=128.86$, $P<0.01$) shows that there is significant difference between the Means of the Post-Test Scores of the two groups.

**6.2.30** The Adjusted Y Means of the Post-Test Scores of Students in the Experimental and Control Groups differ significantly ($t=11.35$, $P<0.01$). The Experimental Group is superior to the Control Group ($M_{YXE}=52.69$, $M_{YXC}=44.61$)

**B. Aided School Students**

**6.2.31** The Mean Post-Test Scores of Students in the Experimental and Control Groups differ significantly ($t=3.71$, $P<0.01$). The Experimental Group is superior to the Control Group ($M_E=44.32$, $M_C=35.39$).

**6.2.32** The Mean Gain Scores of Students in the Experimental and Control Groups differ significantly ($t=10.40$, $P<0.01$). The Experimental Group is superior to the Control Group ($M_E=13.29$, $M_C=5.22$).
6.2.33 The Analysis of Variance of the Pre-Test and Post-Test Scores of Students in the Experimental and Control Groups are $F_X = 0.15$, $P>0.05$ and $F_Y = 13.56$, $P<0.01$ respectively. This shows that the Post-Test Scores of the Experimental and Control Groups differ significantly.

6.2.34 The Analysis of Co-Variance of the Pre- and Post-Test Scores of Students in the Experimental and Control Groups ($F_{YX} = 107.77$, $P<0.01$) shows that there is significant difference between the Means of the Post-Test Scores of the two groups.

6.2.35 The Adjusted Y Means of the Post-Scores of Students in the Experimental and Control Groups differ significantly ($t=10.39$, $P<0.01$). The Experimental Group is superior to the Control Group ($M_{YX_E}=43.3$, $M_{YX_C}=35.4$).

(v) For the Print Skills

A. Phonemic Awareness

6.2.36 The Mean Post-Test Scores of Students in the Experimental and Control Groups differ significantly ($t=3.80$, $P<0.01$). The Experimental Group is superior to the Control Group ($M_E=3.59$, $M_C=2.54$).

6.2.37 The Mean Gain Scores of Students in the Experimental and Control Groups differ significantly ($t=5.6$, $P<0.01$). The Experimental Group is superior to the Control Group ($M_E=1.56$, $M_C=0.48$).

6.2.38 The Analysis of Variance of the Pre- and Post-Test Scores of Students in the Experimental and Control Groups are $F_X = 0.01$, $P>0.05$ and $F_Y = 14.36$, $P<0.01$ respectively. This shows that the Post-Test Scores of the Experimental and Control Groups differ significantly.
6.2.39 The Analysis of Co-Variance of the Pre- and Post-Test Scores of Students in the Experimental and Control Groups ($F_{YX} = 34.52$, $P < 0.01$) shows that there is significant difference between the Means of the Post-Test Scores of the two groups.

6.2.40 The Adjusted Y Means of the Post-Test Scores of Students in the Experimental and Control Groups differ significantly ($t = 5.88$, $P < 0.01$). The Experimental Group is superior to the Control Group ($M_{YXE} = 3.60$, $M_{YXC} = 2.52$).

B. Phonics

6.2.41 The Mean Post-Test Scores of Students in the Experimental and Control Groups differ significantly ($t = 4.30$, $P < 0.01$). The Experimental Group is superior to the Control Group ($M_E = 4.00$, $M_C = 2.86$).

6.2.42 The Mean Gain Scores of Students in the Experimental and Control Groups differ significantly ($t = 5.68$, $P < 0.01$). The Experimental Group is superior to the Control Group ($M_E = 1.38$, $M_C = 0.35$).

6.2.43 The Analysis of Variance of the Pre- and Post-Test Scores of Students in the Experimental and Control Groups are $F_X = 0.19$, $P > 0.05$ and $F_Y = 18.36$, $P < 0.01$ respectively. This shows that the Post-Test Scores of the Experimental and Control Groups differ significantly.

6.2.44 The Analysis of Co-Variance of the Pre- and Post-Test Scores of Students in the Experimental and Control Groups ($F_{YX} = 36.92$, $P < 0.01$) shows that there is significant difference between the Means of the Post-Test Scores of the two groups.

6.2.45 The Adjusted Y Means of the Post-Test Scores of Students in the Experimental and Control Groups differ significantly ($t = 6.08$, $P < 0.01$).
Conclusions and Suggestions

P<0.01). The Experimental Group is superior to the Control Group (M_{YXE}=3.96, M_{YXC}=2.90).

C. Spelling

6.2.46 The Mean Post-Test Scores of Students in the Experimental and Control Groups differ significantly (t=2.90, P<0.01). The Experimental Group is superior to the Control Group (M_E=7.04, M_C=6.33).

6.2.47 The Mean Gain Scores of Students in the Experimental and Control Groups differ significantly (t=2.18, P<0.05). The Experimental Group is superior to the Control Group (M_E=1.52, M_C=0.98).

6.2.48 The Analysis of Variance of the Pre- and Post-Test Scores of Students in the Experimental and Control Groups are F_X=0.35, P>0.05 and F_Y=8.35, P<0.01 respectively. This shows that the Post-Test Scores of the Experimental and Control Groups differ significantly.

6.2.49 The Analysis of Co-Variance of the Pre- and Post-Test Scores of Students in the Experimental and Control Groups (F_{YX}=9.74, P<0.01) shows that there is significant difference between the Means of the Post-Test Scores of the two groups.

6.2.50 The Adjusted Y Means of the Post-Test Scores of Students in the Experimental and Control Groups differ significantly (t=3.12, P<0.01). The Experimental Group is superior to the Control Group (M_{YXE}=7.00, M_{YXC}=6.38).

D. Fluency

6.2.51 The Mean Post-Test Scores of Students in the Experimental and Control Groups differ significantly (t=6.75, P<0.01). The
Experimental Group is superior to the Control Group ($M_E=6.79$, $M_C=4.76$).

6.2.52 The Mean Gain Scores of Students in the Experimental and Control Groups differ significantly ($t=8.07$, $P<0.01$). The Experimental Group is superior to the Control Group ($M_E=2.98$, $M_C=0.79$).

6.2.53 The Analysis of Variance of the Pre- and Post-Test Scores of Students in the Experimental and Control Groups are $F_X=0.39$, $P>0.05$ and $F_Y=45.21$, $P<0.01$ respectively. This shows that the Post-Test Scores of the Experimental and Control Groups differ significantly.

6.2.54 The Analysis of Co-Variance of the Pre- and Post-Test Scores of Students in the Experimental and Control Groups ($F_{XY}=71.13$, $P<0.01$) shows that there is significant difference between the Means of the Post-Test Scores of the two groups.

6.2.55 The Adjusted Y Means of the Post-Test Scores of Students in the Experimental and Control Groups differ significantly ($t=8.44$, $P<0.01$). The Experimental Group is superior to the Control Group ($M_{YXE}=6.84$, $M_{YXC}=4.71$).

E. Print Skills - Total

6.2.56 The Mean Post-Test Scores of Students in the Experimental and Control Groups differ significantly ($t=6.06$, $P<0.01$). The Experimental Group is superior to the Control Group ($M_E=21.42$, $M_C=16.49$).

6.2.57 The Mean Gain Scores of Students in the Experimental and Control Groups differ significantly ($t=11.43$, $P<0.01$). The Experimental Group is superior to the Control Group ($M_E=7.45$, $M_C=2.60$).
6.2.58 The Analysis of Variance of the Pre- and Post-Test Scores of Students in the Experimental and Control Groups are $F_X=0.01$, $P>0.05$ and $F_Y=36.45, P<0.01$ respectively. This shows that the Post-Test Scores of the Experimental and Control Groups differ significantly.

6.2.59 The Analysis of Co-Variance of the Pre- and Post-Test Scores of Students in the Experimental and Control Groups ($F_{YX}=140.78, P<0.01$) shows that there is significant difference between the Means of the Post-Test Scores of the two groups.

6.2.60 The Adjusted Y Means of the Post-Test Scores of Students in the Experimental and Control Groups differ significantly ($t=11.87, P<0.01$). The Experimental Group is superior to the Control Group ($M_{YXE}=21.39, M_{YXC}=16.53$).

(vi) For the Meaning Skills

A. Vocabulary

6.2.61 The Mean Post-Test Scores of Students in the Experimental and Control Groups differ significantly ($t=2.54, P<0.05$). The Experimental Group is superior to the Control Group ($M_E=7.99, M_C=7.23$).

6.2.62 The Mean Gain Scores of Students in the Experimental and Control Groups differ significantly ($t=3.72, P<0.01$). The Experimental Group is superior to the Control Group ($M_E=1.18, M_C=0.46$).

6.2.63 The Analysis of Variance of the Pre- and Post-Test Scores of Students in the Experimental and Control Groups are $F_X=0.03$, $P>0.05$ and $F_Y=6.42, P<0.05$ respectively. This shows that the Post-Test Scores of the Experimental and Control Groups differ significantly.
6.2.64 The Analysis of Co-Variance of the Pre- and Post-Test Scores of Students in the Experimental and Control Groups (F_{YX}=13.78, P<0.01) shows that there is significant difference between the Means of the Post-Test Scores of the two groups.

6.2.65 The Adjusted Y Means of the Post-Test Scores of Students in the Experimental and Control Groups differ significantly (t=3.71, P<0.01). The Experimental Group is superior to the Control Group (M_{YXE}=7.97, M_{YXC}=7.25).

B. Background Knowledge

6.2.66 The Mean Post-Test Scores of Students in the Experimental and Control Groups differ significantly (t=3.44, P<0.01). The Experimental Group is superior to the Control Group (M_E=9.01, M_C=7.76).

6.2.67 The Mean Gain Scores of Students in the Experimental and Control Groups differ significantly (t=3.24, P<0.01). The Experimental Group is superior to the Control Group (M_E=3.09, M_C=2.03).

6.2.68 The Analysis of Variance of the Pre- and Post-Test Scores of Students in the Experimental and Control Groups are F_X=0.43, P>0.05 and F_Y=11.76, P<0.01 respectively. This shows that the Post-Test Scores of the Experimental and Control Groups differ significantly.

6.2.69 The Analysis of Co-Variance of the Pre-Test and Post-Test Scores of Students in the Experimental and Control Groups (F_{YX}=12.43, P<0.01) shows that there is significant difference between the Means of the Post-Test Scores of the two groups.

6.2.70 The Adjusted Y Means of the Post-Test Scores of Students in the Experimental and Control Groups differ significantly (t=3.53,
C. Reading Comprehension

6.2.71 The Mean Post-Test Scores of Students in the Experimental and Control Groups differ significantly ($t=3.99$, $P<0.01$). The Experimental Group is superior to the Control Group ($M_E=10.39$, $M_C=8.51$).

6.2.72 The Mean Gain Scores of Students in the Experimental and Control Groups differ significantly ($t=7.04$, $P<0.01$). The Experimental Group is superior to the Control Group ($M_E=1.89$, $M_C=0.44$).

6.2.73 The Analysis of Variance of the Pre- and Post-Test Scores of Students in the Experimental and Control Groups are $F_X=0.71$, $P>0.05$ and $F_Y=15.82$, $P<0.01$ respectively. This shows that the Post-Test Scores of the Experimental and Control Groups differ significantly.

6.2.74 The Analysis of Co-Variance of the Pre- and Post-Test Scores of Students in the Experimental and Control Groups ($F_{XY}=64.48$, $P<0.01$) shows that there is significant difference between the Means of the Post-Test Scores of the two groups.

6.2.75 The Adjusted Y Means of the Post-Test Scores of Students in the Experimental and Control Groups differ significantly ($t=8.04$, $P<0.01$). The Experimental Group is superior to the Control Group ($M_{YXE}=10.21$, $M_{YXC}=8.69$)

D. Meaning Skills - Total

6.2.76 The Mean Post-Test Scores of Students in the Experimental and Control Groups differ significantly ($t=4.05$, $P<0.01$). The
Experimental Group is superior to the Control Group (M_E = 27.39, M_C = 23.51).

6.2.77 The Mean Gain Scores of Students in the Experimental and Control Groups differ significantly (t = 7.59, P < 0.01). The Experimental Group is superior to the Control Group (M_E = 6.17, M_C = 2.93).

6.2.78 The Analysis of Variance of the Pre- and Post-Test Scores of Students in the Experimental and Control Groups are F_X = 0.60, P > 0.05 and F_Y = 16.30, P < 0.01 respectively. This shows that the Post-Test Scores of the Experimental and Control Groups differ significantly.

6.2.79 The Analysis of Co-Variance of the Pre- and Post-Test Scores of Students in the Experimental and Control Groups (F_{YX} = 56.41, P < 0.01) shows that there is significant difference between the Means of the Post-Test Scores of the two groups.

6.2.80 The Adjusted Y Means of the Post-Test Scores of Students in the Experimental and Control Groups differ significantly (t = 7.52, P < 0.01). The Experimental Group is superior to the Control Group (M_{YXE} = 27.06, M_{YXC} = 23.84).

Conclusion II: The Reading Habit of Upper Primary School Students is significantly improved by Mental Modelling based on Multiple Strategy Instruction as compared to Activity Oriented Method of Instruction.

This conclusion is arrived at based on the following findings.

6.2.81 The Mean Post-Test Scores of Students in the Experimental and Control Groups differ significantly (t = 5.79, P < 0.01). The Experimental Group is superior to the Control Group (M_E = 26.25, M_C = 23.39).
Conclusions and Suggestions

6.2.82 The Mean Gain Scores of Students in the Experimental and Control Groups differ significantly \( (t=30.64, \ P<0.01) \). The Experimental Group is superior to the Control Group \( (M_E=8.92, \ M_C=1.90) \).

6.2.83 The Analysis of Variance of the Pre- and Post-Test Scores of Students in the Experimental and Control Groups are \( F_X=0.03, \ P>0.05 \) and \( F_Y=33.29, \ P<0.01 \) respectively. This shows that the Post-Test Scores of the Experimental and Control Groups differ significantly.

6.2.84 The Analysis of Co-Variance of the Pre- and Post-Test Scores of Students in the Experimental and Control Groups \( (F_{YX}=86.97, \ P<0.01) \) shows that there is significant difference between the Means of the Post-Test Scores of the two groups.

6.2.85 The Adjusted Y Means of the Post-Test Scores of Students in the Experimental and Control Groups differ significantly \( (t=9.33, \ P<0.01) \). The Experimental Group is superior to the Control Group \( (M_{YXE}=26.21, \ M_{YXC}=23.42) \).

Conclusion III: The Attitude towards English of Upper Primary School Students is significantly improved by Mental Modelling based on Multiple Strategy Instruction as compared to Activity Oriented Method of Instruction.

This conclusion is arrived at based on the following findings.

6.2.86 The Mean Post-Test Scores of Students in the Experimental and Control Groups differ significantly \( (t=5.22, \ P<0.01) \). The Experimental Group is superior to the Control Group \( (M_E=64.50, \ M_C=56.68) \).

6.2.87 The Mean Gain Scores of Students in the Experimental and Control Groups differ significantly \( (t=30.85, \ P<0.01) \). The Experimental Group is superior to the Control Group \( (M_E=8.98, \ M_C=1.90) \).
6.2.88 The Analysis of Variance of the Pre- and Post-Test Scores of Students in the Experimental and Control Groups are $F_X = 0.23$, $P>0.05$ and $F_Y = 27.03$, $P<0.01$ respectively. This shows that the Post-Test Scores of the Experimental and Control Groups differ significantly.

6.2.89 The Analysis of Co-Variance of the Pre- and Post-Test Scores of Students in the Experimental and Control Groups ($F_{YX} = 986.50$, $P<0.01$) shows that there is significant difference between the Means of the Post-Test Scores of the two groups.

6.2.90 The Adjusted $Y$ Means of the Post-Test Scores of Students in the Experimental and Control Groups differ significantly ($t=31.42$, $P<0.01$). The Experimental Group is superior to the Control Group ($M_{YXE} = 64.14$, $M_{YXC} = 57.04$).

6.3 TENABILITY OF THE HYPOTHESES

Each of the three hypotheses that were formulated for the study was tested for tenability and are presented below.

**Hypothesis 1:** Mental Modelling based on Multiple Strategy Instruction will be significantly more effective than Activity Oriented Method of Instruction in enhancing Reading Competency in English among Upper Primary School Students

i. for the Total Sample;

ii. for the Gender Sub Samples;

iii. for the Locale Sub Samples;

iv. for the Sub Samples based on Management of Schools;

v. for the Print Skills, viz. Phonemic Awareness, Phonics, Spelling, and Fluency;

vi. for the Meaning Skills, viz. Vocabulary, Background Knowledge, and Reading Comprehension.
The following findings of the study substantiate this hypothesis.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Finding Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Sample</strong></td>
<td>6.2.1, 6.2.2, 6.2.3, 6.2.4, 6.2.5</td>
</tr>
<tr>
<td><strong>Gender Sub Samples</strong></td>
<td></td>
</tr>
<tr>
<td>Boys</td>
<td>6.2.6, 6.2.7, 6.2.8, 6.2.9, 6.2.10</td>
</tr>
<tr>
<td>Girls</td>
<td>6.2.11, 6.2.12, 6.2.13, 6.2.14, 6.2.15</td>
</tr>
<tr>
<td><strong>Sub Samples based on Locale of School</strong></td>
<td></td>
</tr>
<tr>
<td>Urban School Students</td>
<td>6.2.16, 6.2.17, 6.2.18, 6.2.19, 6.2.20</td>
</tr>
<tr>
<td>Rural School Students</td>
<td>6.2.21, 6.2.22, 6.2.23, 6.2.24, 6.2.25</td>
</tr>
<tr>
<td><strong>Sub Samples based on Management of School</strong></td>
<td></td>
</tr>
<tr>
<td>Government School Students</td>
<td>6.2.26, 6.2.27, 6.2.28, 6.2.29, 6.2.30</td>
</tr>
<tr>
<td>Aided School Students</td>
<td>6.2.31, 6.2.32, 6.2.33, 6.2.34, 6.2.35</td>
</tr>
<tr>
<td><strong>Components of Reading Competency</strong></td>
<td></td>
</tr>
<tr>
<td>Print Skills</td>
<td></td>
</tr>
<tr>
<td>Phonemic Awareness</td>
<td>6.2.36, 6.2.37, 6.2.38, 6.2.39, 6.2.40</td>
</tr>
<tr>
<td>Phonics</td>
<td>6.2.41, 6.2.42, 6.2.43, 6.2.44, 6.2.45</td>
</tr>
<tr>
<td>Spelling</td>
<td>6.2.46, 6.2.47, 6.2.48, 6.2.49, 6.2.50</td>
</tr>
<tr>
<td>Fluency</td>
<td>6.2.51, 6.2.52, 6.2.53, 6.2.54, 6.2.55</td>
</tr>
<tr>
<td>Print Skills - Total</td>
<td>6.2.56, 6.2.57, 6.2.58, 6.2.59, 6.2.60</td>
</tr>
<tr>
<td>Meaning Skills</td>
<td></td>
</tr>
<tr>
<td>Vocabulary</td>
<td>6.2.61, 6.2.62, 6.2.63, 6.2.64, 6.2.65</td>
</tr>
<tr>
<td>Background Knowledge</td>
<td>6.2.66, 6.2.67, 6.2.68, 6.2.69, 6.2.70</td>
</tr>
<tr>
<td>Reading Comprehension</td>
<td>6.2.71, 6.2.72, 6.2.73, 6.2.74, 6.2.75</td>
</tr>
<tr>
<td>Meaning Skills - Total</td>
<td>6.2.76, 6.2.77, 6.2.78, 6.2.79, 6.80</td>
</tr>
</tbody>
</table>
Conclusions and Suggestions

The findings numbered 6.2.1 to 6.2.35 indicate that Mental Modelling based on Multiple Strategy Instruction is significantly more effective than Activity Oriented Method of Instruction in enhancing Reading Competency in English among the Total Sample and Sub Samples of Boys, Girls, Urban School Students, Rural School Students, Government School Students and Aided School Students at Upper Primary level.

Again, the findings numbered 6.2.36 to 6.2.80 indicate that Mental Modelling based on Multiple Strategy Instruction is significantly more effective than Activity Oriented Method of Instruction in enhancing the Components of Reading Competency in English among Upper Primary School Students.

Hypothesis II: Mental Modelling based on Multiple Strategy Instruction will be significantly more effective than Activity Oriented Method of Instruction in improving Reading Habit among Upper Primary School Students.

The findings numbered 6.2.81, 6.2.82, 6.2.83, 6.2.84, and 6.2.85 substantiate this hypothesis and indicate that Mental Modelling based on Multiple Strategy Instruction is significantly more effective than Activity Oriented Method of Instruction in improving Reading Habit among Upper Primary School Students.

Hypothesis III: Mental Modelling based on Multiple Strategy Instruction will be significantly more effective than Activity Oriented Method of Instruction in improving Attitude towards English among Upper Primary School Students.

The findings numbered 6.2.86, 6.2.87, 6.2.88, 6.2.89, and 6.2.90 substantiate this hypothesis and indicate that Mental Modelling based on
Multiple Strategy Instruction is significantly more effective than Activity Oriented Method of Instruction in improving Attitude towards English among Upper Primary School Students.

6.4 EDUCATIONAL IMPLICATIONS OF THE STUDY

The main objective of the study was to explore to explore the levels of Reading Competency in English among Upper Primary School Students and to compare the effectiveness of Mental Modelling based on Multiple Strategy Instruction and Activity Oriented Method of Instruction in enhancing Reading Competency in English among Upper Primary School Students. The study proved that Mental Modelling based on Multiple Strategy Instruction is far superior to the Activity Oriented Method of Instruction in enhancing Reading Competency in English, in improving Reading Habit as well as in improving Attitude towards English. The findings of the study and the conclusions drawn from the findings helped to suggest certain educational implications for Teachers, Teacher Trainees, Students, Curriculum constructors, Research Agencies and Research Scholars. The implications are outlined below.

Teachers should take into consideration the results of Research studies for academic planning. Teachers should create a synthesis between knowledge of the discipline and knowledge of how students learn. They should have a good understanding of how learning happens and be responsible for what and how their students learn.

Teachers should employ novel and interesting instructional strategies/tactics, which provide a multitude of opportunities to choose suitable activities for instruction. This is the hallmark of effective teaching. Teachers need to be conscientious regarding the effectivity and usability of Mental Modelling based on Multiple
Conclusions and Suggestions

Strategy Instruction; such new strategies do not require elaborate technology, except competence and efficiency on the part of the teachers.

Teachers should lead students towards profound learning in a delightful manner. This will result in excellent performance. Teachers should use appropriate techniques as an integral component of the instructional process. Importance should be given to students’ views on the significant dimensions in learning and courses related to student learning approaches, whereby students gain new perspectives and insights about learning.

A child’s level of phonemic awareness on entering school is widely held to be the strongest single determinant of the success that she/he will experience in learning to read - or, conversely, the likelihood that she/he will fail. Effort should be taken in order to help the children acquire Phonemic Awareness.

All beginning readers must be taught the connections between approximately 40 sounds of spoken English and 26 letters of the alphabet. This understanding that written symbols represent the phonemes of spoken words is called the “alphabetic principle” and is critical for the development of accurate and rapid word reading skills. Hence, Phonics instruction should begin in early childhood itself.

Learning to spell requires instruction and gradual integration of information about print, speech sounds, and meaning - these, in turn, support memory for whole words, which is used in both spelling and sight reading. Students should actively explore words, compare and contrast them in order to discover patterns and principles, and teachers should play an important role in this exploration. Hence,
instruction should be given in spelling that is interesting to the learner as well makes the learner think.

The most important factor in determining how much readers will comprehend and how well writers will be able to communicate about a given topic is their level of knowledge about that topic. The importance of prior/ background knowledge to comprehension and communication should be included in all teaching of reading.

The ultimate goal of reading instruction must be to enable children to understand what they read. They must be able to engage in a complex process of activating previous experiences and knowledge, applying their knowledge of vocabulary and language, and using various reading strategies to make sense of text. So reading must be made more effective and meaningful by employing strategies like Active Listening, Comprehension Monitoring, Mental Imagery, Mnemonics, and so on.

Student learning should involve both acquiring knowledge and knowing how that knowledge becomes usable in vital requirements. Thereby, there will be increase efficiency and confidence with the learner approaches a learning task as well as in his ability to perform a skill. Teachers and students alike benefit from their reflection on the dynamics of teaching and learning, which is the core of education and is the first step towards revising ones teaching-learning approach.

Teacher educators should disseminate the results of relevant research on teaching learning strategies such as cognitive, metacognitive, social, resource management and the like, so that Teacher Educands become aware of the necessity for employing new instructional strategies. Teacher educators become competent
Conclusions and Suggestions

in producing instructional material based on new instructional strategies in diverse forms.

- Within the pre-service training, teacher educands should be equipped with theoretical information and practical guidelines to translate new instructional strategies into practice. In-service courses should be periodically revised and updated. The training programme must be geared to enhance the professional quality, excellence and caliber of faculty members. Pre-service and in-service teacher training programmes need to focus on integrating novel teaching strategies in order to make school a better learning environment in future.

- National level and state level curriculum framers must take adequate steps to incorporate innovative learning strategies that enhance intense learning among students. Professional organizations should incorporate and disseminate the outcomes of relevant and significant research conducted in the field of education.

- Teachers can make a valuable contribution in developing a friendly relationship with their students, in order to develop a positive attitude towards learning English language.

- Teachers should take into consideration the results of Research studies for academic planning.

- Teachers should create a synthesis between knowledge of the discipline and knowledge of how students learn. They should have a good understanding of how learning happens and be responsible for what and how their students learn.

- Teachers should employ novel and interesting instructional strategies/tactics, which provide a multitude of opportunities to choose suitable activities for instruction. This is the hallmark of
Conclusions and Suggestions

effective teaching. Teachers need to be conscientised regarding the
effectivity and usability of Mental Modelling based on Multiple
Strategy Instruction. Such new strategies do not require elaborate
technology, except competence and efficiency on the part of the
teachers.

Teachers should lead students towards deep learning in a delightful
manner. This will result in excellent performance.

Teachers can make a valuable contribution in developing a friendly
relationship with their students, in order to develop a positive
attitude towards learning English language.

Positive psychological classroom atmosphere should be provided
for the learning of a foreign language.

Teachers should motivate the students to learn better English, by
highlighting its importance in their life.

Educators and parents should always encourage learners to read
materials written in English like newspapers, magazines and books.

Teachers should use appropriate techniques as an integral
component of the instructional process.

Importance should be given to students views on the significant
dimensions in learning and courses related to student learning
approaches, whereby students gain new perspectives and insights
about learning.

Student learning should involve both acquiring high level
knowledge and knowing how that knowledge becomes usable in
fundamental issues. Thereby, there will be an increase in efficiency
and confidence with the learner as he approaches a learning task as
well as in his ability to perform a skill.
Teachers and students alike benefit from their reflection on the dynamics of teaching and learning, which is the core of education and is the first step towards revising one's teaching-learning approach.

Teacher educators should disseminate the results of relevant research on teaching learning strategies such as cognitive, metacognitive, social, macro, resource management and the like, so that Teacher Educands become aware of the necessity for employing new instructional strategies.

Teacher educators become competent in producing auto instructional material based on new instructional strategies both in multimedia and modular form.

Within the pre-service training, teacher educands should be equipped with theoretical information and practical guidelines to translate new instructional strategies into practice.

In-service courses should be periodically revised and updated. The training programme must be geared to enhance the professional quality, excellence and caliber of faculty members.

Pre-service and in-service teacher training programmes need to focus on integrating novel teaching strategies in order to make school a better learning environment in future.

National level and state level curriculum framers must take adequate steps to incorporate innovative learning strategies that enhance intense learning among students.

Professional organizations should incorporate and disseminate the outcomes of relevant and significant research conducted in the field of education.
Conclusions and Suggestions

- It is important to have teachers/educators, who are qualified to teach English. So that proper attitude, interest and language are conveyed to the learners of English at School level.

6.5 SUGGESTIONS FOR FURTHER RESEARCH

The present study is a limited one in terms of time, sample size, subject and standard. Keeping in view these limitations of the study and the constraints under which it was conducted, the findings do no claim wide generalizations. It is therefore suggested that:

- Similar studies may be conducted for different age groups, subjects of study and medium of instruction.
- On-line studies and web enhanced learning based on reflective activities have to be attempted.
- The effect of Mental Modelling based on Multiple Strategy Instruction can be tested on other variables.
- Exploratory studies on the attitude of teachers towards employing new strategies for classroom instruction have to be undertaken.
- The relative effectiveness of the Mental Modelling based on Multiple Strategy Instruction can be explored in various other localities like Tribal and Coastal areas in Kerala and even in schools that follow different educational syllabi.
- The effect of other new strategies can also be tested in enhancing Reading Competency.
- The present research was confined to Kottayam and Pathanamthitta Districts. It can be extended to other districts of Kerala.