CHAPTER VII

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7.1 INTRODUCTION

The ability for solving the problems lies in the foundation of the allround development of a man. Ability for facing the challenge of problems and finding their solutions are natural matters for mankind. Problem Solving approach is a special contribution for the educational field. It has become a challenge to check the effectiveness of this approach for the pupils entering the secondary level.

This research study taken by the investigator was an attempt to investigate the impact of problem solving approach on creative personality and academic performance of secondary school pupils. The research work is stated in forth coming paragraphs.
7.2 SUMMARY OF RESEARCH WORK

The statement of this research study indicates to investigate the effect of problem solving approach on creative personality and academic performance of Std. IX. Here, the investigator has used programme of problem solving approach (PPSA) prepared by himself. The set of booklets material designed primarily for IX grade students, providing systematic instructions and carefully guided practice in solving problems. Five booklets of programme are prepared. First two booklets are of problems related to mathematics, third is of science, fourth is of Gujarati language and fifth one is of social science. Each booklet contains eight problems. These five booklets were given to the students of two experimental groups. Ten weeks training was given. Two weeks schedule was arranged for one programme. This programme provided the students the thrill of solving problems.

The Tools used for the Study

(1) Problem solving approach programme of five small booklets for the treatment was prepared by the investigator.

(2) A Standardized SES scale prepared by K.G. Desai was used.

(3) Gujarati version of a creative personality test of Donald W. Mackinnon was used to measure the
The result of Std. IX was used for the performance of the students.

The designed material used for the study was an Experimental Factorial Design (3x2x2) corresponding to the three independent variables:

(i) Treatment (PSA) varied at three levels.
(ii) Caste varied at two levels.
(iii) Socio Economic Status varied at two levels.

A total of 155 students from the IX grade classes participated in the study. On the basis of pre-test scores of creative personality test the students were divided into three equal groups, out of which one is control group. One experimental group was treated randomly with PSA alongwith discussion and other experimental group was treated randomly with PSA alongwithout discussion. No programme i.e. (No treatment) was administered to the control group.

After the administration of the whole programme, the creative personality test was administered to the students of all the three groups under treatment. This creative test measures the creative personality of students acquired after the extension of PSA. These scores of creative personality were subjected to the statistical technique of ANOVA (F-test) to study the overall significance of difference in the main creative personality of the students.

(4)
and the interactive effects of these three independent variables. The results of the IX grade examination were used as the academic performance of the students. The scores of the results were subjected to the statistical technique of ANOVA (F-test) to study the overall significance of difference in the main and the interactive effects of these three independent variables. All these results have been presented in the various tables and discussed in the main body of the thesis under chapter VI. The inferences warranted by statistical analysis have been summarised in the coming caption after general observations made by him during the administration of the problem solving approach programme.

7.3 GENERAL OBSERVATIONS

In the process of problem solving approach the teacher played an important role as the open class-room climate induced the students to think freely. The teachers were the same here throughout the training period of ten weeks. Moreover, necessary instructions to maintain proper classroom climate were imparted to the students. Behler had suggested some essential points for open classroom climate, the investigator had tried to follow these points,

They are as under:

(1) Be on the alert for new ideas and encourage the pupils to develop all their creative talents.

(2) Make children more sensitive to environmental stimuli.

(3) Develop tolerance of new ideas.

(4) Beware of forcing a set pattern.

(5) Develop creative classroom atmosphere— a free, relaxed and unhurried one.

(6) Encourage students to note their ideas in concrete form whenever possible.

(7) Encourage and evaluate self-learning.

(8) Develop constructive criticism—not just criticism.

Such a healthy and open classroom climate encouraged the students to think in various dimensions of life. Consequently they tried out numerous and varied responses in pilot tryout.

During the tryout the following observations were made:

(1) They found some difficulties to solve some problems in beginning.

(2) They took more time to solve some problems.

(3) They could respond some problems within fixed
duration of time.

(4) In pilot tryout they were able to give the solutions of 62 problems.

(5) Most of the students took deep interest in these type of programme.

(6) Throughout the whole administration procedure of the tryout they were anxious for being kept away from loss of their regular period in the school and enjoyed the programme.

(7) They liked to read the problems and solve them.

(8) They took more interest in the problems related to mathematics and science than the problems of language and social science at the time of solving them.

(9) They were looking co-operative in these programmes.

In the beginning of the training programme PSA, the students were not happy with such work, but after few days a little more understanding and interest were appeared on their faces. The discussion followed the programme and was carried out poorly in the beginning, but later on the students were accelerated to take part in the discussion of the problems. By the end of the training, the treatment group students were felt more enthusiasm as compared to the control group students of the same school. Here is a supporting statement to above observation given by
"A person starting to teach creative thinking encounters blank looks on the faces of his students during the first few weeks. After a few weeks the blank looks fade and by the end of the programme the students usually have a surprisingly large number of workable ideas."

In the process of implementation, pupils of experimental groups took part with keen interest. After completion of the programme pupils were attracted towards the problem solving approach in their daily learning schedule. This shows a little success of the programme. The statistical observations would give a clear and perfect picture of its effect.

7.4 STATISTICAL OBSERVATIONS AND CONCLUSIONS

As there were two dependent variables in the experimental study the observations and conclusions have been presented in the two sections as under:

7.4.1 Statistical Observations and Conclusions with reference to Creative Personality

On the basis of data obtained in the previous chapter

VI, the statistical observations and conclusions with reference to creative personality are discussed according to the formulated study-wise hypotheses. They are briefly given below:

**Study-1**  
Problem Solving Approach with discussion v/s Creative Personality

**HO₁**: There is a significant effect of problem solving approach with discussion on the creative personality of secondary school pupils.

The data for hypothesis HO₁ are cited below:

**Data**: From table 6.6(a)
- F-value is 4.78 which is significant at 0.01 level.
  - Fobs (4.78) > Ftab (3.70)

From table 6.7(a)
- $\bar{X}$ exp. Gr. with Dis. (12.6) >
- $\bar{X}$ exp. Gr. without dis. (11.45) >
- $\bar{X}$ Con. Gr. (9.93)

Hence the observation and conclusion are made as under:

**Observation**

The Hypothesis HO₁ is accepted.

**Conclusion**:  
(a) There is a significant effect of problem solving approach with discussion on creative personality.
(b) The mean difference in creative personality score is in favour of experimental group pupils.

(c) The relation between three groups is shown symbolically as below:

(Group of PSA with discussion) > (Group of PSA without discussion) > (Group of no PSA)

**Study-2**

Problem Solving Approach without discussion v/s Creative Personality

**H02**: There is a significant effect of problem solving approach without discussion on the creative personality of secondary school pupils.

The data for hypothesis H02 are listed below:

Data: From table 6.6(a)

\[ F_{obs} (21.27) > F_{tab} (3,70) \]

From table 6.7(a)

\[ \bar{X} \text{ PSA with D (12.6)} > \bar{X} \text{ PSA without D(11.45)} \]

Hence observation and conclusion are made as below:

**Observation**

The hypothesis H02 is accepted.

**Conclusion**

(a) There is a significant effect of problem solving approach without discussion on creative personality of secondary school pupils.
The variable treatment - with discussion and without discussion has significant effect on creative personality of the pupils.

The relation between these two experimental group is shown symbolically as below:

\[ (\text{Exp. Gr. PSA with D.}) \succ (\text{Exp. Gr. PSA without D}) \]

### Study-3: Caste v/s Creative Personality

**H0₃**: There is no significant difference in creative personality of secondary school pupils of backward caste and non backward caste when problem solving approach is implemented or not implemented.

The data for the hypothesis H0₃ are as listed below:

**Data**: From table 6.6(a)

\[ F_{obs} (7.18) \succ F_{tab} (3.70) \text{ at } 0.01 \text{ level for } df 11/108. \]

Table 6.7(a) shows that

\[ \bar{x}_{\text{Non BC}} (11.90) \succ \bar{x}_{\text{BC}} (10.75) \]

Hence the observation and conclusion are made as under.

**Observation**

The null hypothesis H0₃ is rejected.

**Conclusion**

(a) There is a significant difference in creative personality of secondary school pupils of Non BC and BC
The non BC pupils show better progress in creative personality than BC pupils.

(c) The Relation between these two groups is shown below:

\((\text{Non BC Gr.}) > (\text{BC Group})\)

**Study-4 Socio Economic Status v/s Creative Personality**

\(H^0_4\) : There is no significant difference in creative personality of secondary school pupils of high socio economic status and low socio economic status.

The data for the hypothesis \(H^0_4\) are listed below:

**Data**

- Table 6.6(a) shows that-
  - \(F_{obs} (11.41) > F_{tab} (3.70)\) at 0.01 level.

- Table 6.7(a) shows that
  - \(\bar{X}_{HSES} (12.5) > \bar{X}_{LSES} (10.6)\)

**Observation**

The null hypothesis \(H^0_4\) is rejected.

**Conclusion**

(a) The data and observation show that there is a significant difference of creative personality of high SES and low SES pupils of secondary school when problem solving approach is implemented or not.

(b) Means for the levels shows that high SES pupils
show better progress in creative personality
than low SES.

(c) The relation between these two groups are as under:

(High SES Gr.) > (Low SES Gr.)

Study-5 Problem Solving Approach with discussion
and Caste v/s Creative personality

HO5: There is no first order interactive effect
of problem solving approach with discussion
and caste on the Creative personality of
secondary school pupils.

The data for the hypothesis HO5 are listed below:

Data: Table 6.6(a) shows that -

Fobs (0.01) < Ftab (2.45) at 0.05 level

Observation

The null hypothesis HO5 is accepted.

Conclusion

The data and observation shows that there is no
first order interactive effect of problem solving
approach with discussion and caste on the creative
personality of secondary school pupils.

Study-6 Problem Solving Approach with discussion
and SES v/s XXX Creative Personality

HO6: There is no first order interactive effect of
problem solving approach with discussion and
socio economic status on the creative personality of secondary school pupils.

The data for hypothesis HO_6 are listed below:

Data: Table 6.6(a) shows that

\[ F_{obs} (0.90) < F_{tab} (2.45) \text{ at 0.05 level.} \]

Hence the observation and conclusions are made as under:

Observation

The null hypothesis is accepted.

Conclusion

The result shows that there is no first order interactive effect of problem solving approach with discussion and socio economic status on the creative personality of secondary school pupils.

Study-7

Problem solving approach without discussion and Caste v/s Creative personality

HO_7: There is no first order interactive effect of problem solving approach without discussion and caste on creative personality of secondary school pupils.

The data for the hypothesis HO_7 are listed below:

Data:

Table 6.6(a) shows that 

\[ F_{obs} (0.11) < F_{tab} (2.45) \text{ at 0.05 level} \]

Hence the observation and conclusion are made as under.
Observation
The null hypothesis $H_{07}$ is accepted.

Conclusion
The data and observation show that there is no interactive effect of problem solving approach without discussion and caste on creative personality of secondary school pupils.

Study-8
Problem Solving Approach without discussion and SES v/s Creative Personality

$H_{08}$
There is no first order interactive effect of problem solving approach without discussion and socio economic status on creative personality of secondary school pupils.

The data of hypothesis $H_{08}$ is listed below:

Data:
Table 6.6(a) shows that -

$F_{obs} (3.28) > F_{tab} (2.45)$ at 0.05 level.

Hence the observation and conclusion are made as under:

Observation
The hypothesis $H_{08}$ is rejected.

Conclusion
There is interactive effect of problem solving approach without discussion and socio economic status on creative personality.

Study-9
Caste and SES v/s Creative Personality

$H_{09}$
There is no first order interactive effect of
caste and SES on creative personality of secondary school pupils.

The data of hypothesis $H_{Og}$ are listed below:

Data:
From table 6.6(a)

$F_{obs} (0.04) < F_{tab} (2.45)$ at 0.05 level.

Hence the observation and conclusion are as below:

Observation
The hypothesis $H_{Og}$ is accepted.

Conclusion
By data and observation it is concluded that there is no interactive effect of caste and socio economic status on creative personality of secondary school pupils.

Study-10

Problem solving approach with discussion,
Caste and SES v/s Creative Personality

$H_{O10}$

There is no second order interactive effect of problem solving approach with discussion, caste and SES on the creative personality of secondary school pupils.

The data for the hypothesis $H_{O10}$ are listed below:

Data:
From table 6.6(a)

$F_{obs} (1.30) < F_{tab} (2.45)$ at 0.05 level.

Observation
The null hypothesis is accepted.
Conclusion

By data and observation it is concluded that there is no interactive effect of problem solving approach with discussion, caste and socio economic status on creative personality of secondary school pupils.

Study-11

Problem solving approach without discussion, Caste and Socio economic status v/s Creative personality.

$H_{011}$ : There is no second order interactive effect of problem solving approach without discussion, caste and socio economic status on creative personality of secondary school pupils.

The data for hypothesis $H_{011}$ are listed below:

Data :

From table 6.6(a)

$F_{obs} (0.15) < F_{tab} (2.45)$ at 0.05 level.

Hence the observation and conclusion are made as under:

Observation The hypothesis $H_{011}$ is accepted.

Conclusion There is no interactive effect of problem solving approach without discussion, caste and SES on creative personality.
7.4.2 **Statistical observations and conclusions with reference to Academic Performance**

On the basis of data obtained in the previous chapter VI, the statistical observations and conclusions with reference to academic performance are discussed according to the studywise hypotheses formulated. They are briefly given below:

**Study-1**  
Problem solving approach with discussion v/s Academic performance

**H01**  
There is a significant effect of problem solving approach with discussion on academic performance of secondary school pupils.

The data for hypothesis H01 are listed below:

**Data:**  
The table 6.6(b) shows that -  
\[ F_{obs} (0.03) < F_{tab} (2.45) \]  
at 0.05 level.

From table 6.7(b) -  
\[ \bar{X} \text{ exp.Gr. with D. (47.85)} \]  
\[ \bar{X} \text{ exp.Gr. without D. (48.17)} \]  
\[ \bar{X} \text{ exp.Gr. without D. (48.17)} < \bar{X} \text{ NO PSA (48.25)} \]

Hence the observation and conclusion are made as below:

**Observation**  
The hypothesis H01 is rejected.
Conclusion

(a) There is no effect of problem solving approach on academic performance.

(b) There is no remarkable mean difference in academic performance of three groups.

(c) The relation between three with reference to academic performance is shown symbolically as below:

$$\text{(Group of PSA with D)} \preceq \text{(Group of PSA without D)} \preceq \text{(Group of NO PSA)}$$

Study-2

Problem solving approach without discussion v/s Academic performance

$H_{02}$: There is a significant effect of problem solving approach without discussion on academic performance of secondary school pupils.

The data for hypothesis $H_{02}$ are listed below:

Data:

From table 6.6(b) -

$$\text{Fobs (0.02)} \preceq \text{Ftab (2.45) at 0.05 level.}$$

From table 6.7(b) -

$$\overline{X} \text{ exp. Gr. with D (47.85)} \succ \overline{X} \text{ exp. Gr. without D (48.17).}$$

Hence the observation and conclusion are made as below:

Observation

The hypothesis is rejected.
Conclusions

(a) There is no significant effect of problem solving approach on academic performance.

(b) The academic performance of experimental group without discussion was progressive than experimental group with discussion.

(c) The relation is negative with reference to academic performance for the treatment.

Study-3 Caste v/s Academic Performance

H03 : There is no significant difference in academic performance of backward caste and non backward caste of secondary school pupils, when problem solving approach is implemented or not.

The data for the hypothesis H03 are listed below:

Data :

From table 6.6(b)

Fobs (27.82) > Ftab (3.70) at 0.01 level.

From table 6.7(b)

\( \bar{X} \) NonBC (52.37) > \( \bar{X} \) BC (43.81)

Hence the observation and conclusion are made as under:

Observation The null hypothesis H03 is rejected.

Conclusion

(a) The data and observation show that there is a significant difference in academic performance of
of backward and non backward caste pupils when problem solving approach is implemented or not.

(b) The non BC pupils show better progress in academic performance than the BC pupils.

(c) The effect of the treatment is in favour of non BC pupils.

(d) The relation between these two group is shown below:

\[(\text{NonBC Gr.}) > (\text{BC Gr.})\]

Study-4: Socio Economic Status v/s Academic Performance

HO$_4$: There is no significant difference in academic performance of secondary school pupils of high socio economic status and low socio economic status.

The data for hypothesis HO$_4$ are listed below:

Data:

The table 6.6(b) shows that -

\[F_{obs} (24,46) > F_{tab} (3,70)\] at 0.01 level.

From table 6.7(b) -

\[\bar{x}_{HSES} (12.05) > \bar{x}_{LSES} (10.6)\]

Hence the observation and conclusion are made as under:

Observation

The hypothesis HO$_4$ is rejected.

Conclusion

(a) There is a significant difference in academic
performance of high and low SES pupils.

(b) The means for the academic performance of high SES pupils is greater than low SES pupils.

(c) The means difference is 1.45.

(d) The performance of high SES pupils is better than low SES for the treatment.

\[ \text{(Gr. of HSES) } > \text{(Gr. of LSES)} \]

Study-5  Problem solving approach with discussion and Caste v/s Academic performance

\[ H_{05} : \text{There is no first order interactive effect of problem solving approach with discussion and backward and non backward caste on academic performance of secondary school pupils.} \]

The data for hypothesis \( H_{05} \) are listed below.

Data :

The table 6.6(b) shows that

\[ F_{obs} (0.32) \leq F_{\text{tab}} (2.45) \text{ at 0.05 level.} \]

The observation and conclusion are made as below :

Observation

The hypothesis \( H_{05} \) is accepted.

Conclusion

With the help of data and observation it is concluded that there is no interactive effect of problem solving approach with discussion and caste on academic performance of secondary school pupils.
Study-6  Problem solving approach with discussion and Socio Economic Status v/s Academic performance.

$H_{06}$: There is no first order interactive effect of problem solving approach with discussion and high and low socio economic status on academic performance of secondary school pupils.

The data for the hypothesis are listed below:

Data:

The table 6.6(b) shows that -

$F_{obs} (0.02) \leq F_{tab} (2.45)$ at 0.05 level.

Hence the observation and conclusion are made below:

Observation

The hypothesis is accepted.

Conclusion

The data and observation show that there is no interactive effect of problem solving approach with discussion and SES on academic performance of secondary school pupils.

Study-7  Problem solving approach without discussion and Caste v/s Academic performance.

$H_{07}$: There is no first order interactive effect of problem solving approach without discussion and caste on academic performance of secondary
school pupils.

The data for the hypothesis \( H_{O7} \) are listed below:

**Data:**

The table 6.6(b) shows that-

\[
F_{obs} (1.14) < F_{tab} (2.45) \text{ at } 0.05 \text{ level.}
\]

Hence the observation and conclusion are made as under:

**Observation**

The null hypothesis \( H_{O7} \) is accepted.

**Conclusion**

With the help of data and observation it can be concluded that there is no interactive effect of problem solving approach without discussion and caste on academic performance of secondary school pupils.

**Study-8**

Problem solving approach without discussion and socio economic status v/s Academic performance.

**\( H_{O8} \)**: There is no first order interactive effect of problem solving approach without discussion and socio economic status on academic performance of secondary school pupils.

The data for hypothesis \( H_{O8} \) are listed below.

**Data:**

From table 6.5(b)-

\[
F_{obs} (2.10) < F_{tab} (2.45) \text{ at } 0.05 \text{ level.}
\]

The observation and conclusion are made as below.
Observation
The hypothesis $H_{Og}$ is accepted.

Conclusion
With the help of result it can be concluded that there is no interactive effect of problem solving approach without discussion and SES on academic performance of secondary school pupils.

Study-9
Caste and Socio Economic status v/s Academic Performance

$H_{Og}$: There is no first order interactive effect of caste and socio economic status on academic performance of secondary school pupils.

The data for hypothesis $H_{Og}$ are listed below:

Data:
Table 6.6(b) shows that-

$F_{obs} (4.20) > F_{tab} (3.70)$ at 0.01 level.

The observation and conclusion are made as below:

Observation
The hypothesis $H_{Og}$ is rejected.

Conclusion
The data and observation show that there is an interactive effect of caste and SES on academic performance of secondary school pupils.

Study-10
Problem Solving approach with discussion,
and Socio economic status v/s Academic performance.

**HO** : There is no second order interactive effect of problem solving approach with discussion, caste and SES on academic performance of secondary school pupils.

The data for hypothesis **HO** are listed below:

**Data**:
Table 6.6(b) shows that -

Fobs (3.24) > Ftab (2.45) at 0.05 level.

The observation and conclusion are made as under:

**Observation**
The hypothesis **HO** is rejected.

**Conclusion**
According to data and observation it is concluded that there is an interactive effect of problem solving approach with discussion, caste and SES on academic performance of secondary school pupils.

**Study-11**
Problem Solving approach without discussion, Caste and SES v/s Academic performance.

**HO** : There is no second order interactive effect of problem solving approach without discussion, caste and Socio economic status on academic performance of secondary school pupils.
The data for hypothesis $H_{011}$ are listed below.

Data:

Table 6.6(b) shows that -

$F_{obs} (0.24) < F_{tab} (2.45)$ at 0.05 level.

The observation and conclusion are made as under:

**Observation**

The hypothesis $H_{011}$ is accepted.

**Conclusion**

The data and observation focus that there is no interactive effect of problem solving approach without discussion, caste and SES on academic performance of secondary school pupils.

7.5 **Statistical Observations and Conclusions for t-Test with Reference to Creative Personality**

Data: From table 6.8(a) the following data are obtained.

$SDW = 2.35$  $D_{.05} = 2.05$

$SED = 1.05$  $D_{.01} = 2.70$

Out of 66 groups 15 are significant at 0.01 level and 10 groups are significant at 0.05 level and 41 groups are not significant.

**Observation and Conclusion**

The mean difference between two particular groups greater than 2.05 and 2.70 are significant at 0.05 and 0.01 levels.
Out of 66 particular group relations, in 15 relations the mean differences are found to be significant at 0.01 level, in 10 relations the mean differences are revealed to be significant at 0.05 level and remaining 41 groups relations are observed to be no significant.

7.6 STATISTICAL OBSERVATIONS AND CONCLUSION FOR t-TEST WITH REFERENCE TO ACADEMIC PERFORMANCE

Data:
From table 6.8(b) the following data are obtained.

SDW = 8.41 \quad D_{0.05} = 7.37
SED = 3.76 \quad D_{0.01} = 9.62

Out of 66 groups, 24 groups are significant at 0.01 level and 5 groups are significant at 0.05 levels and 37 groups are not significant.

Observation and Conclusion

The mean difference between two particular groups greater than 7.37 and 9.62 are significant at 0.05 and 0.01 levels. Out of 66 particular group relations in 25 relations the mean differences are found to be significant at 0.01 level, in 5 relations mean differences are found to be significant at 0.05 level and the remain 37 group relations the mean differences are observed to be not significant.
7.7 FINDINGS AND DISCUSSION

From the above observations and conclusions the investigator made some important outlook views. The major findings of this study are as under:

(i) A Problem Solving Approach (PSA) is a powerful mean to develop the creative personality of secondary school pupils.

(ii) A Problem Solving Approach is not successful mean to develop the academic performance of secondary school pupils.

(iii) The role of this approach is depended on caste and socio economic status of secondary school pupils with reference to creative personality and academic performance too.

(iv) The main effect of the treatment is significant with reference to creative personality but not with academic performance.

(v) Most of first order and second order interactive effects viz. problem solving approach with and without discussion, caste and SES are found negligible.
7.8 **EDUCATIONAL IMPLICATION**

The present class room teaching is not promising. There is no linking for learning among pupils, between problem solving ability and the traditional academic performance. Teachers have failed in bringing new approaches for teaching. The pattern of teaching is slipping towards only memory power and cramming. After completion of the study pupils do not find job due to lack of their creative personality. The first objective of this research is to give new results of this approach to the teachers and pupils. The problem solving approach is good one to develop the creative personality of the pupils. No doubt academic performance has its own value, but even otherwise in long run to produce genius individuals the creative personality does play part through problem solving approach.

Under the present critical situation when the national policy of education in India (1986) puts emphasis on the self learning, self evaluation, child centred education and thinking process, this problem solving approach is useful to the teachers as well as pupils.

The result of the study proved that this short term programme has increased the creative personality of the pupils. So any educational person can use such programmes for school going pupils. They may apply any of the following ways.
(1) During day to day teaching teacher can spare 10-15 minutes from the period of 40 minutes for this approach. Teacher can raise some problems to solve according to the contents of the subject.

(2) The teacher can implement the programme during a term. In his own subject teacher can teach by this approach. A period of 35 minutes per week may be allotted in regular school time table for this approach.

(3) It is also possible to introduce such approach when the school has a spare period per week for co-curricular activities. This activity would raise the interest of the teachers as well as the students in general.

(4) Teacher can work on a project of problems of various subjects.

(5) The teacher can give new way of teaching through this approach.

Thus, by the end of the school education, there are every possibilities for the students to become a creative citizen of the nation. And so it is advisable to do some more further research work in this particular area of problem solving approach, the guidelines for this work have been mentioned in the next caption to come.
SUGGESTIONS FOR FURTHER RESEARCHES

This research has produced some positive and encouraging results and hence it deserves a few suggestions for further researches. They are enlisted hereunder:

(1) The same study should be replicated on larger sample.

(2) The same study should be replicated more than ten weeks treatment for the programme.

(3) The effect of problem solving approach might be found with reference to sex as well as area.

(4) The post effect of such training programme might be found as a follow up work.

(5) It is also a subject of research that "An investigation into the effectiveness of problem solving approach on the performance and personality of primary school pupils."

(6) The same study should be replicated for higher secondary pupils also.

It is so essential in the field of education to give some new approaches of teaching and learning. Our education field is facing some critical challenges and problems. Personality and performance are the major criteria for the allround development of the pupils. In such a challenging ground the problem solving approach may be useful to the field of education. It is our duty to find out the effect of this approach in various branches of education.