"A theory is a generalization or series of generalizations by which one attempts to explain some phenomenon in a systematic manner. It serves the purposes of explaining and predicting. It provides an explanation of observed phenomena and it can also predict as yet unobserved or undiscovered factors by indicating their presence if the theory is consistent. The researcher is then "tipped off" in terms of what to look for".

- Kerlinger F.N.
CHAPTER VII

OBSERVATIONS AND CONCLUSIONS

CONTENTS

7.0 Introduction
7.1 Observations During Testing
   7.1.1 General Observations
   7.1.2 Statistical Observations
7.2 Conclusions
7.3 Educational Implications
7.4 Suggestions for Further Study
7.5 Resume

Reference
7.0 Introduction

Creative ability consists of several distinct abilities to divergent thinking. According to Guilford and Marrified "Creativity is not one ability at all, but a whole cluster of abilities". The first ability is called ideational fluency, which measures a person's ability to come out with a number of solutions to a given problem. The second is called flexibility which provides a large variety of solutions to respond to a problem. The third creative ability is originality or the ability to come up with usual but appropriate responses.

More work has been carried out in general ability i.e. I.Q. of the school going children but a few work have been conducted on creative ability of school going children. Moreover a good number of research studies have been done in the field of secondary education but very few research studies have been done in the field of primary education. Keeping in view both the needs, the investigator had endeavour to take this study. The present research deals with the creativity of the primary school children. The study has been divided into two parts:
(i) Construction of Creative Thinking Ability Test.
(ii) To Study the Creative Ability in relation to independent variables viz., grade, sex, birth order and stream.

Two complete pictures of this investigation have been reviewed in this chapter. At the same time, the results obtained during the study and necessary comments regarding further researches have been summed up in brief. Keeping in view the appropriate usages in education system. The implications of the findings have been inferred in this chapter.

7.1 Observations During Testing

It was an essential and fundamental requirement to develop creative ability test to measure creative level of the primary school children. To provide a valid tool, a systematic procedure for tryouts had been adopted. Thus the observations made during this research study are noted below in two separate captions.

7.1.1 General Observations

Even though the observations made during this process of tryout and implementation of the final creative ability test are non-statistical, it is worth to note as general observations.

1. While administering a CAT, it required a good deal of
time, patience and perseverance on the part of the test administrators.

2. The task of test administration to a lower grade primary school children was found much more difficult and time consuming. But active primary school teachers, helped sincerely in administering the test to the children of grade II and III in a small group.

3. The students could give a good number of responses to a test items included in verbal creativity test Part I, rather than those included in Figural Creativity test Part II.

4. The categories of the responses to a test items in a verbal creative test are found more in number than in a figural creative test.

5. Numerical ability test is a new type of test, based on some Mathematical concepts. It was found difficult to decide the category of the responses to a test items included in Numerical Ability Test - Part III. But the Mathematics experts helped in deciding the various categories of the responses obtained.

6. The younger students were found eager to work with the new type of test and thus they had co-operated fairly in the testing programme.
7. The creative test was not strictly time-bound. But the freedom was given to the students to add a few responses to any test item which comes to their mind during the given extra minutes allowed at the end of the test. This experience has shown that this is of great help to the testees.

8. The investigator's personal approaches to most of the primary schools under study received healthy responses from the heads, teachers and pupils. Thus he had opportunities to observe and enjoy the primary school climate during the research study.

7.1.2 Statistical Observations

The final creative ability test was administered to 360 primary school children. The obtained creative scores are the fundamental data which gives the nature of the population under study. From the data analysis the following statistical facts are observed:

1. The mean, median and standard deviation computed are respectively 90.96, 91.16 and 33.87 (Table 5.7).

2. The critical ratio for the skewness was .65, which is less than 1.56 at 0.5 level. It shows that the skewness is not significant and it is concluded that the obtained distribution has no real deviation from normally (Table 5.7).
3. For sex difference in creative ability, the observed t-value is .25, which is not significant. (Table 5.8). So sex has no any role in the creativity of primary school children.

4. The t-value of area variable is 1.29, which is not significant at 0.05 level. The area was not considered in establishing the norms of the present test.

5. The t-values of grade as variable are 5.25 (II, III); 7.85 (II, IV); 0.38 (II, V); 1.74 (III, IV); 5.2 (III, V); 7.26 (IV, V). Out of them the t-values for grade difference 5.25 (II, III); 7.85 (II, IV); 5.2 (III, V); 7.26 (IV, V) are significant at 0.05 level (Table 5.6). and the rest t-values are not significant. It is found that there is no any consistent significant grade difference.

6. The mean scores of primary school children studying in II, III, IV and V grade are 75, 100.94, 102.45, 76.78 respectively. The mean scores of students of grade III and IV were found to be higher than the mean scores of the students studying in II and IV grade (Table 5.6).

7. From the trend analysis of the scores on creative ability test along the grades (II, V), it is found that $F_{quad}$ value is 312.57 (Table 5.6). It indicates the trend of creativity among the grades II-V is cubic and
the creative ability was observed in the III and IV grade children.

8. The reliability of the test and sub-tests by test-retest and split-half reliability ranges from 0.75 to .99 (Table 5.13).

9. The coefficient of correlation of sub-tests with the whole test ranges from 0.75 to .84 (Table 5.15).

10. The coefficient of inter-correlation among the sub-tests ranges from 0.73 to 0.81 (Table 5.16).

7.2 Conclusions

There were two phases of the contemplated study. The first phase consisted in 4x2x3 factorial design incorporating grade, sex and birth order. The following pertinent conclusions were arrived at:

1. The grade of the pupils had a quadratic trend. This means there is a curvature in the trend. The creativity scores are found more in grade III & IV while they are less in grade II & V.

2. The boys were found to be superior in creative ability to the girls.

3. The birth order of the pupils determined the creative ability. The first born tends to be more creative than the other.
4. All the independent variables were found to be interacting significantly with each other in producing the creativity scores at .01 level. There was a significant linear trend across birth order.

The second phase incorporated three factors of grade, stream and intelligence.

All the three factors were responsible significantly in producing creativity scores.

1. The pupils of grades III & IV were superior to the pupils of grades II & V. The quadratic trend was dominant.

2. The pupils of K.G. stream were found to be superior in creative ability. It seems that kindergarten system is helpful in making children more creative.

3. Higher intelligence is more conducive to creativity than the low intelligence.

7.3 Educational Implications

The implications of the research study are self-evident and self-explanatory. However, the following implications of this study are worth noting:
1. The sex of the primary school children should not be taken into account while dealing with the pupils for their creative activities in school or at home.

2. The third and fourth grade students possess comparatively a high level of creative ability. As such primary school teachers should nurture the creativity of those children when they would be promoted to the upper grade.

3. The children coming after doing two years course of K.G. acquire high creative level than those admitted directly to first grade of primary school. It is a fact that the creativity is responsive to environmental situation. Such situation should be provided by the people putting their children in K.G. classes. K.G. training is found to be effective in nurturing the creativity in the younger children.

4. The creativity of the children depends on the order of their birth. First born child possesses higher creativity than the second and the rest born children. The parent's care may take a great role in developing the creativity of the first born child. Hence this finding suggests the urgent need of population control in the family for better enhancement of his own family members.
7.4 **Suggestions for Further Research**

The present research was merely an exploratory effort based on ANOVA model of a mixed type. Hence, the recommendations cannot be generalized beyond the sample. But more intensive and reliable research work is desired to be undertaken by the research workers in the directions suggested by the investigator. A few selected students are suggested for the further research on the following topics:

1. The Creative Ability Test can be developed by down-word extension i.e. for K.G. I, II, Grade I, and II.
2. To study the trend analysis of the creativity scores of children studying in K.G., I to V.
3. To investigate the role of birth order of the children in the family on their creative ability.
4. An investigation into the correlation between the general ability and creative ability of the primary school children.
5. To establish the norms of creative ability of children of primary schools of different districts in Gujarat State.
6. A validity study of the creative ability test by developing the parallel forms of the test.
7. A trend analysis of the creative ability of the children among the various categories of I.Q.

7.5 Resume

A study of the history of education shows that the formal system of education in society has emphasized the maintenance of norms of a culture. In order to develop the society, it has been considered necessary to provide new knowledge and skill through learning experiences. But with the rapid developments in Science and Technology, creativity and its study has become important. It is now realized that any system of education in a society should encourage creativity so that creativity can be saved from stagnations.

Hence, creativity should be included into the curriculum of a school as well as in its evaluation. Now National Education Policy has also put due weightage on the creativity. So it is the right time to have a valid tool of measuring creativity of the children to make predictions about their creative behaviours, to know the formal and informal way of nurturing the creativity. More researches should be done in this field of creativity and its development.
Thus research on any subject has no end. Further research starts when the previous research stops. In the words of Vivekanand:

"Arise, Awake and Stop till the goal is reached".

This can give inspiration to all those who may undertake research in future.

Reference