C H A P T E R S I X

SUMMARY AND CONCLUSIONS

C H A P T E R VI

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6.1.0 Introduction

The present study entiltled 'Effects of Patterns of Teaching upon Creative Thinking among Adolescents' aimed at testing the effectiveness of Creative Teaching Method consisting of two techniques of developing creative thinking among the school students. These techniques are: (i) Morphological analysis developed by Zwicky (1969), and (ii) Brainstorming developed by Osborn (1951).

Manpower, if properly utilised becomes the wealth of the nation; if not, it will go to waste. Original and creative thinking in man are such important human abilities. This ability among students to a large extent determines the standard of education especially at the higher level. Cognising the imitative attitude, both at the teachers' and students levels, the tendency of not inducing original thinking among our students, the Education Commisssion (1964-66) remarked that Indian standard of education at all levels was not comparable with international standards. The commsi sion also aspired that atleast, at certain fields Indian standards should be at par with international levels. Failure to develop creative thinking in students is a loss not only to the individuals but to the nation at large. Taylor

(1964) has aptly pointed out that because creative acts affect enormously, not only scientific progress, but society in general, those nations who learn best to identify, develop and encourage the creative potential in their people, may find themselves in a very advantageous position. In India, at present, as Tripathi (1969) says 'we have to produce leaders who do not fall back on the old patterns of thinking, but persons with vision who could boldly face the problems and find solutions, to the challenges'.

Like regarding about many other concepts educationists or psychologists do not have consensus about the definition and meaning of creative thinking. There are several definitions put forward by many researchers which differ from one to other slightly or to a great extent. Creativity is not reflected merely by high intelligence. The monumental study of Getzels and Jackson (1962) has highlighted the fact that, if selection is based on intelligence alone, at least two out of three of those persons, best fitted to be the scientific leaders of the future will be missed. It is quite agreeable to other fields also.

Considering the present position of research in the field of creativity in our country and visualising the importance to be given for this area of knowledge, the NCERT Working Group (1975) has emphasised the need to take up researches in teaching style in the class room, and the

environment in fostering creative thinking. The Indian Council of Social Sciences Reasearch (ICSSR) has placed creativity as one of the priority areas in the psychological research.

Creative approach to teaching is helpful to the teachers in their profession in different ways. Ithelps them in keeping the students sufficiently motivated. It is economic also. Experiments conducted by Moore (1961), Ornstein (1961) have shown that many things can be learned creatively, more economically than that can be by authority.

Teachers' personality traits play an important role in influencing the development of creative thinking. Gallagher (1966) reported that there were numerous indications that only slight changes in style and approach can modify the child's out put in terms of originality and uniqueness on tests. The study of Wodtke and Wallen (1965) gave strength to the point that high degree of controlling behaviour by teachers is detrimental to verbal creative performance. Torrance's studies (1966) have also demonstrated that dominancy of teacher mars the creative thinking of the pupils.

Several attempts have been made in which deliberate practices and environment were provided to find out the results. Torrance (1972) recorded 72 percent of the total number of 140 studies, dealing with the various ways of teaching for

creative thinking which have shown success in fostering this ability. Amram and Giese (1965), Wardrop et al. (1969), Torrance (1972), Wilson (1972), Belcher (1973), Khetena (1973), Alencar (1974), Weinstein (1975), are some of the researchers who found positive significant effect of the different treatment of fostering creative thinking.

Morphological analysis (Zwicky 1969) as a method of creativity development is fairly similar to attribute listing. It can be used to produce more idea combinations than any other. Osborn 's (1951) technique of developing creative thinking is popularly known as Brainstorming. Whereas many studies showed positive favourable results in developing creative thinking by the technique of Brainstorming, certain other investigators like Parloff and Handlon (1963), Taylor et al. (1957), Frantz (1975) found negative results of Brainstorming. Morphological analysis has been used mainly in the field of engineering. In view of the conflicting and contradictory research findings and in view of examining the possibility of introducing these two creativity techniques as teaching methods in order to teach the content of the school subject and due to a lack of an Indian study at the doctoral level, it was thought desirable to undertake the present investigation.

The problem for the present investigation specifically read as 'Effects of Patterns of Teaching upon Creative Thinking

among Adolescents'. The phrase 'patterns of teaching' in this study meant the two techniques of creativity development proposed, such as, Morphological analysis and Brainstorming sandwitched with traditional method of teaching. This pattern of teaching as explained above has been named throughout in this study as 'Creative Teaching Method' for the sake of convenience. The creative thinking in the present study denotes the scores obtained through the Passi Tests of Creativity. The word 'adolescents' denotes eighth grade students. For conveniences sake, hereafter they were called as eighth graders.

The following were the objectives of the present study: (i) to find out the effect of Creative Teaching Method upon the general creative thinking of eighth graders, (ii) to find out the effect of the Creative Teaching Method upon creative thinking in geography of eighth graders, (iii) to find out the effect of the Creative Teaching Method upon the achievement in geography of eighth graders.

Bearing the above objectives in mind the investigator formulated the following null hypotheses for the present study.

1. There is no significant difference in general creative thinking ability between the group, taught through the Creative Teaching Method and the group taught through the traditional method.
2. There is no significant difference in cognition abilities

in geography between the group taught through the Creative Teaching Method and the group taught through the traditional method.

3. There is no significant difference in memory abilities in geography between the group taught through the Creative Teaching Method and the group taught through the traditional method.

4. There is no significant difference in divergent production abilities in geography between the group taught through the Creative Teaching Method and the group taught through the traditional method.

5. There is no significant difference in convergnet production abilities in geography between the group taught through the Creative Teaching Method and the group taught through the traditional method.

6. There is no significant difference in evaluation abilities in geography, between the group taught through the Creative Teaching Method and the group taught through the tradtional method.

7. There is no significant difference in creative thinking in geography, between the group taught through the Creative Teaching Method and the group taught through the tradtional method.

8. There is no significant difference in achievement in geography between the group taught through the Creative Teaching Method and the group taught through the traditional method.

6.2.0 Methodology

The present study was conducted in three phases: (i) the pilot study, (ii) the test construction study, and (iii) the final study. The experimental design in schematic form is given below in Table 6.1.

TABLE 6.1 SCHEMATIC PRESENTATION OF THE EXPERIMENTAL DESIGN

Three covariates: i. Socio economic status ii. Intelligence iii. General Creative Thinking	
Experimental group N=35	Control group N=36
Treatment variable: Lessons through Morphological analysis plus Brainstorming, plus tradtional method for four months.	Treatment variable: Lessons through tradtional method for four months.
Criterion variables: i. General creative thinking ii. Creative thinking in geography iii. Achievement in geography (Achievement in geography was measured at three intervals of 11 lessons duration in each case)	

The pilot study was conducted to find out the feasibility and to design the Creative Teaching Method, suitable

to average class room situations. An English medium school, (Navarachana High School, Baroda) was selected for the pilot study and the investigator taught geography through the Creative Teaching Method for two months for seventh and eighth grades during Novermber, December 1974 and January 1975. The experience gained was made use of as guidelines for the final study.

In order to measure the creative thinking in geography and achievement in geography of eighth graders, a Geography Achievement Test on Structure of Intellect Model, and three Achievement Tests in Geography were developed.

The final study employed a multifactor covariance design having experimental and control groups. The three covariates were SES, intelligence, and general creative thinking. The criterion variables were general creative thinking, creative thinking in geography, and achievement in geography of eighth graders. The treatment variable in the study was teaching geography through Creative Teaching Method.

The data related to the three covariates and the criterion variables were collected from two groups of eighth grade English medium students of Vellore town, viz., (i) Voohrees High School, Vellore, and (ii) Krishna Swamy Mudaliar High School, Vellore. The investigator gave 33 lessons (units of

teaching) selected from the geography book prescribed by the Tamilnadu Governement for eighth grade pupils to the experimental group of which 15 were given through the Creative Teaching Method. The experiment was conducted during August 1975 to December 1975.

6.3.0 Tool Construction

For this study two types of tools were used. They were: (i) tools already standardised, and (ii) tools developed for the purpose of this study. The ready made, standardised tests used in this study were, (i) the Kuppuswamy SES Scale, (ii) the Madhookar Patel Intelligence Test, and (iii) the Passi Tests of Creativity (verbal), for collecting the data of all the covariates and the criterions of general creative thinking of eighth graders.

To measure the creative thinking in geography, a Geography Achievement Test on Structure of Intellect model was constructed on the lines of Guilford's (1956) Structure of Intellect Model, (GATSI). In this test, items for testing the semantic content of geography for all the five operations and six products of the SI model (30 mental abilities) were included. The test construction was consisting of two parts: (i) item analysis study, and (ii) reliability and validity study. For the purpose of item analysis study the investigator

selected four English medium schools two each from the city of Baroda and Madras. The preliminary draft of GATSI was administered and data were gathered from 200 eighth grade students of the four schools, namely, (i) Baroda High School, Baroda, (ii) Vidyakunj High School, Baroda, (iii) Central School, Guindy , Madras, and (iv) Rani Meyyammai High School, Adayar, Madras.

For reliability and validity study, a sample of 60 eighth graders, 30 each from Baroda High School, Baroda and Central School, Guindy, Madras was selected. The split-half reliability and the concurrent validity of the test were 0.92 and 0.52 respectively.

Three achievement tests in geography, such as, Achievement Test I in Geography, Achievement Test II in Geography, and Achievement Test III in Geography were developed to measure the achievement in geography of the eighth graders. Since the investigator wanted to see the effect of the treatment at different periods of the experiment three achievement tests were necessary. Sample for the item analysis and reliablity and validity were selected from two schools of Vellore town, viz., (i) Voohrees High School, Vellore, and (ii) Krishna Swamy Mudaliar High School, Vellore. The 60 students from the above two schools formed the sample for this study. The test-retest reliability and the concurrent validity of Achievement Test I in Geography are 0.78 and 0.51 respectively.

The same for Achievement Test II in Geography are 0.77 and 0.67 and for Achievement Test III are 0.65 and 0.49.

6.4.0 Analysis and Results

To test the hypotheses, the collected data were mainly analysed by applying the multiple analysis of covariance technique (Snedecor and Cochran 1956). Another technique used for analysis was t-test. It has been used to compare the mean subscores of general creative thinking, creative thinking in geography and achievement in geography for the two groups, separately.

TABLE 6.2 HYPOTHESES AND ANCOVA RESULTS

No	Hypotheses	Adjustedmeans		F-ratio
		Control group	Exp. group	
I	There is no significant difference in general creative thinking ability between the group taught through the traditional method and the group taught through the Creative Teaching Method	55.92	50.54	2.53
II	There is no significant difference in cognition abilities in geography between the group taught through the Creative Teaching Method and the group taught through the traditional method	7.65	7.38	0.12
III	There is no significant difference in memory abilities in geography between the group taught through the Creative Teaching Method and the group taught through the traditional method.	8.02	8.64	1.42

No	Hypotheses	Adjusted means		F-ratio
		Control group	Exp. group	
IV	There is no significant difference in divergent production abilities in geography between the group taught through the Creative Teaching Method and the group taught through the traditional method	13.02	15.22	2.50
V	There is no significant difference in convergent production abilities in geography between the group taught through the Creative Teaching Method and the group taught through the traditional method.	10.67	12.73	4.19*
VI	There is no significant difference in evaluation abilities in geography between the group taught through the Creative Teaching Method and the group taught through the traditional method.	9.90	10.28	0.23
VII	There is no significant difference in creative thinking in geography between the group taught through the Creative Teaching Method and the group taught through the traditional method.	49.35	54.32	2.40
VIII	There is no significant difference in achievement in geography between the group taught through the Creative Teaching Method and the group taught through the traditional method.			
	Test I	44.87	59.92	5.16*
	Test II	42.38	52.28	8.71**
	Test III	37.22	40.68	1.06

* significant at 0.05 level
** significant at 0.01 level

TABLE 6.3 HYPOTHESES AND t-TEST RESULTS

No	Hypotheses	Sub parts	Control gr Mean	Control gr SD	Experimental gr Mean	Experimental gr SD	t-value
I.	There is no significant difference in general creative thinking ability between the group, taught through the Creative Teaching Method and the group taught though the traditional method.	SPAT	9.97	8.22	10.68	4.28	0.45
		UUAT	25.30	16.13	25.17	13.26	0.04
		CAT	17.41	10.63	18.02	7.74	0.27
II.	There is no significant difference in cognition abilities in geography between the group taught through the Creative Teaching Method and the group taught through the traditional method.	CMU	0.16	0.44	0.85	0.97	3.85**
		CMC	1.91	0.28	1.82	0.45	0.98
		CMR	1.30	0.78	1.74	0.56	2.69**
		CMS	1.72	1.59	1.34	1.66	0.98
		CMT	1.77	1.82	1.14	1.51	1.59
		CMI	0.61	0.68	0.68	0.71	0.44
III.	There is no significant difference in memory abilities in geography between the group taught through the Creative Teaching Method and the group taught through the traditional method.	MMU	0.63	0.76	0.88	0.67	1.44
		MMC	1.38	0.72	1.34	0.68	0.27
		MMR	0.94	0.63	1.05	0.72	0.70
		MMS	1.13	1.29	1.57	1.26	1.42
		MMT	1.88	0.31	1.60	0.77	2.06*
		MMI	1.91	0.36	2.28	0.78	2.53*
IV.	There is no significant difference in divergent production abilities in geography between the group taught through the Creative Teaching Method and the group taught through the traditional method	DMU	3.44	2.27	3.37	2.26	0.13
		DMC	3.44	1.62	3.45	1.31	0.03
		DMR	0.55	1.05	1.05	1.58	1.57
		DMS	1.77	1.51	2.08	1.46	0.87
		DMT	1.80	1.67	2.05	1.28	0.71
		DMI	1.69	2.09	3.51	2.97	2.98**
V.	There is no significant difference in convergent production abilities in geography between the group taught through the Creative Teaching Method and the group taught through the traditional method	NMU	0.86	0.89	1.34	0.83	2.33*
		NMC	1.88	2.06	3.08	2.70	2.09*
		NMR	0.63	0.72	0.85	0.69	1.29
		NMS	4.75	1.77	5.37	1.45	1.60
		NMT	0.83	1.48	0.68	1.34	0.53
		NMI	1.41	1.62	1.80	1.76	0.95

No	Hypotheses	Sub parts	Control gr. N=36 Mean	Sd	Experimental gr. N=35 Mean	SD	t-value
VI	There is no significant difference in evaluation abilities in geography between the group taught through the Creative Teaching Method and the group taught through the traditional method.	EMU	1.63	0.79	1.65	0.63	0.10
		EMC	1.19	0.78	1.31	0.67	0.68
		EMR	0.50	0.69	0.94	0.87	2.36*
		EMS	2.88	1.32	2.91	1.40	0.07
		EMT	1.88	0.31	1.65	0.68	1.89
		EMI	1.61	1.77	1.94	1.71	0.80
VII	There is no significant difference in creative thinking in geography between the group taught through the Creative Teaching Method and the group taught through the traditional method.		Total of the results from hypotheses 2 to 6				
			48.30	17.57	55.40	16.50	1.75
VIII	There is no significant difference in achievement in geography between the group taught through the Creative Teaching Method and the group taught through the tradibional method.	ACHA	43.33	16.64	55.51	20.92	2.71**
		ACHB	41.16	12.96	53.54	18.21	3.30**
		ACHC	36.08	15.92	41.85	15.15	1.56

* significant at 0.05 level
** significant at 0.01 level

6.5.0 Conclusions

As discussed earlier the present study attempted to find out the effectiveness of the Creative Teaching Method upon the general creative thinking, creative thinking in geography

and the achievement in geography of eighth graders. From the perusal of the related literature, it will be seen that only a few studies have taken samples from school students to see the effect of the creativity techniques. Many of them deal with adults placed in other types of settings. The main purpose of many of the studies was to introduce the different techniques as creativity development methods and not as teaching methods. In this context it can be stated that a maiden attempt was made in this study 'to teach' the content of geography through the Creative Teaching Method. The examination of the findings only supports that the study of creativity is still too immature to say exactly what happens in a person who studies and practices the principles of creative thinking.

From the present study the following conclusions have been derived. Out of it, conclusions 1 and 2 are relating to general creative thinking, from 3 to 19 are relating to creative thinking in geography and its sub-parts and 20 and 21 are relating to achievement in geography of eighth graders.

(1) The treatment of Creative Teaching Method in geography, when compared with the traditional method did not produce differential effect upon general creative thinking of eighth graders.

(2) The treatment of Creative Teaching Method in geography, when compared with the traditional method, did not produce differential effect upon the sub-parts of general creative thinking, such as, Seeing Problems, Unusual Uses and Consequences.

(3) The Creative Teaching Method did not produce differential effect upon the cognition abilities in geography of eighth graders when compard with the traditional method of teaching geography.

(4) When compared with the traditional method of teaching geography, the Creative Teaching Method developed higher mean scores on the mental abilities of verbal comprehension and verbal analogies.

(5) There were no differential effects for the mental abilities of verbal classification, general reasoning, penetration, conceptual foresight of eighth graders because of the Creative Teaching Method of teaching geography.

(6) No differential effects were found upon the memory abilities in geography of eighth graders because of the treatment of Creative Teaching Method than the traditional method of teaching geography.

(7) The mental ability of memory for paired associates of eighth graders received significant positive effect because of the Creative Teaching Method than the traditional method of teaching geography.

(8) The traditional method of teaching geography produced higher mean scores on the mental ability of memory for word meanings of eighth graders than the treatment of teaching through Creative Teaching Method.

(9) There were no differential effects for the mental abilities of memory for ideas, concept recall, finding the relation with definition and learned information of eighth graders because of the Creative Teaching Method.

(10) The treatment of Creative Teaching Method in geography did not produce differenital effect upon divergent production abilities in geography of eighth graders, when compared with the traditional method.

(11) The mental ability of elaboration of eighth graders received significant effect by the Creative Teaching Method than the traditional method of teaching geography.

(12) The treatment of Creative Teaching Method in geography did not produce differential effect upon ideational fluency, spontaneous flexibility, associational fluency, expressional fluency, and originality of eighth graders when compared with the traditional method.

(13) The convergent production abilities in geography of eighth graders improved significantly by the Creative Teaching Method than by the tradtional method of teaching geography.

(14) The Creative Teaching Method in geography produced significant mean scores on the mental abilities of location of central idea and ability to see classes of eiththh graders than the traditional method.

(15) No differential effects were found for the mental abilities of eduction of conceptual correlates, ordering, semantic redefinition, and attribute listing of eighth graders, because of the treatment of Creative Teaching Method when compared with the tradtional method of teaching geography.

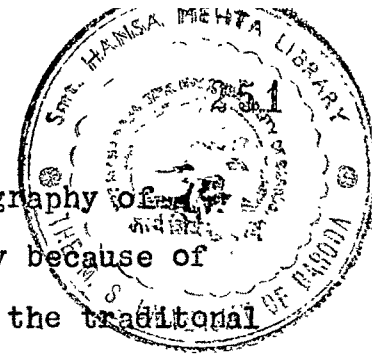
(16) When compared with the traditional method of teaching geography, the Creative Teaching Method did not produce differential effect upon the evaluation abilities in geography of eighth graders.

(17) The Creative Teaching Method developed the mental ability of 'logical evaluation' significantly higher, upon eighth graders than the traditional method of teaching geography.

(18) The treatment of Creative Teaching Method did not produce differential effect upon the mental abilities of class specification from the list of possible answers, class idea to be evaluated, experimental evaluation, production of answers involving the interpretation of common objects and sensitivity to problems of eighth graders when compared with the traditional method of teaching geography.

(19) The treatment of Creative Teaching Method, when compared with the traditional method of teaching geography did not produce differential effect upon the creative thinking in geography of eighth graders.

(20) The mental abilities of verbal comprehension, verbal analogies, memory for paired associates, location of central idea, ability to see classes, elaboration and logical



egaluation, under the creative thinking in geography of the eighth graders could be developed significantly because of the treatment of Creative Teaching Method than the traditional method of teaching geography.

(21) The Creative Teaching Method compared to the traditional method of teaching geography produced higher mean performance scores on the achievement in geography of eighth graders.

(22) The Creative Teaching Method did not produce any negative effect upon achievement in geography of eighth graders.

6.6.0 Educational Implications

Before any educational implications or suggestions based on these results are reported, it would be relevant to consider the following, which is fundamental to any recommendation regarding creative talent. From the perusal of the related literature and from the findings of the present study, it cannot be said that there is steady positive support for the deliberate attempts in developing creative talent. In this connection, the questions raised by Trowbridege (1966) also may be taken into consideration. Trowbridge asks (a) Can creative talent be measured in advance? (b) Is it capable of modification to a desired direction and extent? (c) Are the efforts put into increase the creative talent sufficiently rewarding? and (d) Are researchers aware of the sociopsychological methods and tehniques which would surely contribute to increase in creative thinking? AT this juncture it can

only be said that the research studies in creativity have not attained sufficient maturity to the extent that categorical answers to these questions may be given. Taylor and Barron (1963) in their editorial comments said 'We are perhaps more in the dark about the environmental conditions which facilitate creativity than we are about any other aspect of the problem. There are many other instances where difficulties have been observed, experienced and reported by researchers in the context of such fundamental questions',. Before making any specific recommendation, the investigator further submits that the generalisations based on these study are dependent upon the efficiency of the sample and tools used and are application to similar population. Nevertheless, keeping in view the available resources of money, personnel, and attitudes of the administrators the investigator would recommend formulation and execution of new policies based on the findings of this study. Assuming that either answers to the above questions are partially available or some inevitable incompleteness and imperfections are tolerable, the following few suggestions having educational implications are made.

The conclusions of the study have direct implications for the teachers in schools, persons concerned with the inservice education of teachers, colleges of education, text-book writers, etc. The new pattern of teaching happens

to be conducive to achievement scores, besides other direct implications of the pattern of teaching can be visualised. In this respect it is right to state that the Secondary Education Commission (1954) devoted an entire chapter in its report to dynamic methods of teaching, discussing the objectives of the right techniques, the values of various activity methods and the differenent ways in which these methods and techniques could be adapted to suit different levels of intelligence. Education Commission (1964-66) commented four reasons, such as, the weakness of the average teacher, failure to develop proper educational research on teaching methods, rigidlity of the existing educational system, failure of the administrative machinery to bring about a diffusion of new dynamic methods of teaching for the dull and uninspiring teaching of Indian classrooms. It also accepts that it is such a long and burdensome task to convert a school system based primarily on memorisation into one involving understanding, active thinking, creativity and what has come to be called 'problem solving'. Keeping in view the above and the emphasis being given for the students' active participation in classroom activities, it is considered desirable that the teachers and institutions should aim at introducing this type of new methods, in which students' participation and problem solving are mainly stressed.

From the experience of teaching for the seventh and

eighth grade students, and assuming that the method will work with other classes, it is suggested that an attempt should be made for the introduction of this method for all classes other than the one which is facing the public examination.

Again the conclusions of the study have immediate implication for training institutions. It is proper here to quote Raina (1970) who attempted to study the teacher educators of seven Colleges of Education, of two states, found that they did not possess sufficient knowledge or they were not sufficiently aware about the creativity movement in the field of education and psychology. It is imperative that the teacher educators in the colleges of education should highlight the importance of increasing the mental abilities of verabl comprehension, verbal analogies, memory for paired association, elaboration, location of central idea, ability to see classes and logical evaluation, that contribute for creative thinking among pupils. This should not only be at the level of theory lectures in method classes, but also in actual practice teaching situations.

From the analysis of the B.Ed syllabi of different Universities, is is found that there are suitable places in the theory courses where proper emphasis about the mental ability of creativity and its components can be made. A few

instances may be stated here : (1) Under Philosophical foundations of Education, while discussing the aims of education, as Osborn (1961) says, Creativity should be discussed as one of the objectives of education, (2) In Sociological foundations of education, while teaching 'education for changing society in India', (3) In Psychological foundations while teaching the individual development, (4) In the separate unit of creativity, (4) In General problems of Indian Education, while discussing the improvement of quality and maintaining standards - development of originality and creativity in higher education, etc. In order to achieve this, sufficient inservice training, such as, seminar, workshop, extension lectures, etc., should be arranged, and the college supervisors should be made aware of these facts and needs. To this effect, those institutions which would like to play the role of leaders in educational research for improving pedagogy will have to undertake this responsibility.

Lastly, the corporations of school text book production should guide their authors to write future text-books or improve the present ones in the light of procedures followed for the new pattern of teaching adopted in this study. They also need special training. By this, they can suggest the teachers suitable topics to be taken up under this method. These corporations should prepare detailed hand books with illustrations, so that the teachers will hays concrete examples before them.

6.7.0 Suggestions for Further Research

Keeping in view the findings of the present study, as well as that of related studies, the following suggestions for further research are being put forward:

(1) The present study as such should be replicated at various grade levels and with large sample after standardising criterion attainment test.

(2) It should be replicated with other subjects after standardising criterion attainment tests, in order to see the effect of the Creative Teaching Method in different subjects.

The above replications should be taken up on an inter-state basis, to compare the effect of the treatment in different socio-economic and cultural back grounds.

3. If certain institutions are likely to undertake this project, then it is strongly recommended that treatment duration be so extended to cover the whole year.

(4) Projects should be undertaken to empirically develop teacher hand books, students' text books and work books, audio-visual aids, etc., so as to facilitate the teachers to increase the higher mental processes of children.