

**EFFECT OF CERTAIN STRATEGIES OF TEACHING
ENGLISH ON NURTURING CREATIVITY OF
HIGHER SECONDARY SCHOOL STUDENTS**

ISMAIL, M.

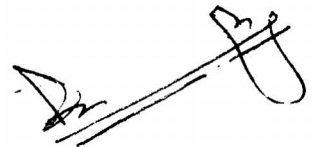
Thesis
Submitted for the Degree of
DOCTOR OF PHILOSOPHY IN EDUCATION

**DEPARTMENT OF EDUCATION
UNIVERSITY OF CALICUT
2007**

DECLARATION

I, **Ismail,M.**, do hereby declare that this thesis entitled “**EFFECT OF CERTAIN STRATEGIES OF TEACHING ENGLISH ON NURTURING CREATIVITY OF HIGHER SECONDARY SCHOOL STUDENTS**” has not been previously formed the basis for the award of a Degree, Diploma, Title or Recognition.

Calicut University,
29.06.2007



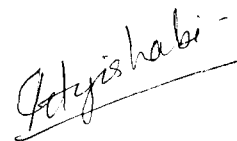
ISMAIL.M

Dr. AYISHABI, T.C.,
Professor,
Department of Education,
University of Calicut.

Calicut University
29.06.2007

CERTIFICATE

Certified that this thesis entitled, “EFFECT OF CERTAIN STRATEGIES OF TEACHING ENGLISH ON NURTURING CREATIVITY OF HIGHER SECONDARY SCHOOL STUDENTS”, is a record of bona fide study and research carried out by **Mr. Ismail, M.**, under my supervision and guidance and that it has not been previously formed the basis for the award of a Degree, Diploma, Title or Recognition.



Dr. AYISHABI, T.C.

Acknowledgement

First, last and always, the investigator wants to acknowledge the Omnipotent source of everything, everything that is life-and of life itself- the Most Merciful Creator, for the completion of the present study.

Thereafter the investigator, wishes to put on record, his sincere prayer touched with reverential gratitude to his guide Dr. Ayishabi, T.C, Professor, Department of Education, University of Calicut, here, for being the source of inspiration and true guidance with the values she lives as an inspiring teacher and the warmth she confers on all the hearts she meets. Without whose microscopic care, scholarly supervision and encouraging disposition, it would not have been possible for the investigator to complete a study of this kind.

The investigator expresses his heart-felt thanks to Dr.C.Naseema Reader and Head of the Department of Education, Prof. (Dr.) P.Kelu, and Prof.(Dr.) V. Sumangala former heads, Department of Education, University of Calicut, for being very magnanimous in providing the facilities required for the completion of the study.

The investigator is deeply grateful to Dr. K. Soman, Retired Professor, Department of Education University of Calicut, for his timely guidance for designing the study.

The story of this research work is quite an astonishing experience for the investigator as he was introduced to a number of lives who with their magical words and deeds of true scholarship and human relationship touched several lives in ways so meaningfully and so profoundly as to defy categorization or description.

The investigator takes the liberty to include a few of them here. It is Dr. Shyamala of RIE Model School Mysore, who motivated the researcher to conduct the present study. It is Dr.N.N Prahlada, Reader in Education, RIE Mysore, who convinced the researcher with his uplifting words and tender pat on the shoulder that it is worthwhile to take up this challenging study.

Acknowledgement

First, last and always, the investigator wants to acknowledge the Omnipotent source of everything, everything that is life-and of life itself- the Most Merciful Creator, for the completion of the present study.

Thereafter the investigator, wishes to put on record, his sincere prayer touched with reverential gratitude to his guide Dr. Ayishabi, T.C, Professor, Department of Education, University of Calicut, here, for being the source of inspiration and true guidance with the values she lives as an inspiring teacher and the warmth she confers on all the hearts she meets. Without whose microscopic care, scholarly supervision and encouraging disposition, it would not have been possible for the investigator to complete a study of this kind.

The investigator expresses his heart-felt thanks to Dr.C.Naseema Reader and Head of the Department of Education, Prof. (Dr.) P.Kelu, and Prof.(Dr.) V. Sumangala former heads, Department of Education, University of Calicut, for being very magnanimous in providing the facilities required for the completion of the study.

The investigator is deeply grateful to Dr. K. Soman, Retired Professor, Department of Education University of Calicut, for his timely guidance for designing the study.

The story of this research work is quite an astonishing experience for the investigator as he was introduced to a number of lives who with their magical words and deeds of true scholarship and human relationship touched several lives in ways so meaningfully and so profoundly as to defy categorization or description.

The investigator takes the liberty to include a few of them here. It is Dr. Shyamala of RIE Model School Mysore, who motivated the researcher to conduct the present study. It is Dr.N.N Prahlada, Reader in Education, RIE Mysore, who convinced the researcher with his uplifting words and tender pat on the shoulder that it is worthwhile to take up this challenging study.

And as gratitude for the exciting help and assistance the investigator received from all these scholars swells the heart of the researcher. The researcher is especially warmed by the thought of Dr. C.G.Venketesha Murthi, Reader in Education, RIE Mysore who by his generosity and patient listening, showed the researcher that the highest thoughts of human relationships are no longer fantasies but a living reality. It is with Dr. Murthi's help that the researcher got permission from Dr. Shylaja to use the English version of the tool, Divergent Production Ability Test for the study. The researcher is truly indebted to Mr. and Mrs. Dr. Venketesha Murthi.

The investigator has countless people to thank for the wisdom and goodness they shared and precious help and support they provided for the present investigation. Mr.Kunhi Pakran, the Principal, the staff and students of Nochat Higher secondary School, Kozhikode; Mr.K.C Balakrishnan, the Principal, the staff and students of GVHSS Meppayyur, Kozhikode are remarkably significant among them.

To Dr. Manikandan and Dr. Fareed of Farook College, Calicut the investigator is indebted for the technical assistance they provided for the analysis and interpretation of the data for the study.

With the same importance, the investigator wishes to acknowledge the thousands of researchers and scholars known and unknown to him all over the world for their sincere efforts to expand the horizon of knowledge for a prosperous and peaceful life on this earth and whose efforts have directly or indirectly helped him to conduct this study.

The investigator wishes to articulate his thanks to the many a smiling face and encouraging heart at the Department of Education, University of Calicut.

The investigator owes his thanks finally to his beloved parents, family members, all the teachers, students, and friends who made him feel that the life is meaningful and creative every moment.



Ismail, M

CONTENTS

LIST OF TABLES

LIST OF APPENDIX

| Chapter | Title | Page No. |
|----------------|---|-----------------|
| I | INTRODUCTION | 1-30 |
| II | REVIEW OF RELATED LITERATURE | 31-204 |
| III | METHODOLOGY | 205-249 |
| IV | ANALYSIS AND INTERPRETATIONS | 250-268 |
| V | SUMMARY OF FINDINGS, CONCLUSIONS AND SUGGESTIONS | 269-289 |
| | REFERENCES | 290-315 |
| | APPENDIX | 316-328 |

LIST OF TABLES

| <i>Table No</i> | | <i>Page No.</i> |
|---------------------|---|---------------------|
| 1 | Number of Theses Completed in Different University Departments in India | 179 |
| 2 | The Classification of Doctoral Research in Major Fields | 180 |
| 3 | Groups Studied by Creativity Researchers | 181 |
| 4 | Details of the Sample Used for the Study | 209 |
| 5 | Divergent Production Abilities and their Test names | 210 |
| 6 | Details of the Test -Re test Reliability of the Test | 215 |
| 7 | The Details of the Test Re test Reliability of the Test for the whole Battery | 215 |
| 8 | Details of Correlation of the Battery with Baker Mehdi's Test of Creative Thinking (Verbal) | 216 |
| 9 | Details of the Validity Measures of the Divergent Production Ability test | 217 |
| 10 | The Details of Lessons Taught Using the Experimental Strategies | 218 |
| 11 | The Summary of Strategies of Teaching Employed for Experimentation | 245 |
| 12 | Details of Activities Employed for the Treatment with Regard to Teaching Various Lessons during the period of Experimentation | 247 |
| 13 | Data and Result of the Test of Significance of Difference between the Mean Scores of Creativity in the Pre test of Experimental (1) and Control (1) Groups : (Science) | 252 |
| 14 | Data and Result of the Test of Significance of Difference between the Mean Scores Of Creativity in the Pre test of Experimental (2) and Control (2) Groups : (Humanities) | 253 |
| 15 | Data and Result of the Test of Significance of Difference between the Mean Post test Scores of Creativity of Experimental Group (1) and Control Group (1) : (Science) | 255 |

| | | |
|----|--|-----|
| 16 | Data and Result of the Test of Significance of Difference between the Mean Gain Scores of Creativity for Experimental (1) and Control (1) Groups : (Science) | 256 |
| 17 | Data and Result of the Test of Significance of Difference between the Mean Pre test Scores and the Post test Scores of Creativity of Experimental Group (1) : (Science) | 257 |
| 18 | Data and Results of the Test of Significance of Difference between the Mean Pre test Scores and the Post test Score of Creativity of Control Group (1) : (Science) | 258 |
| 19 | Data and Result of the Test of Significance of Difference between the Mean Post test Scores of Creativity of Experimental Group (2) and Control group (2) : (Humanities) | 259 |
| 20 | Data and Result of the Test of Significance of Difference between the Mean Gain Scores of Creativity for Experimental (2) and Control (2) Groups : (Humanities) | 260 |
| 21 | Data and Result of the Test Of Significance of Difference between the Mean Pre test Scores and the Post test Scores of Creativity of Experimental Group (2) : (Humanities) | 262 |
| 22 | Data and Result of the Test of Significance of Difference between the Mean Pre test Scores and Post test scores of Creativity of Control Group (2) : (Humanities) | 263 |
| 23 | Data and Result of the Test of Significance of Difference between the Mean Post test Scores and Retention test Scores of Creativity of Experimental Group (1) : (Science) | 264 |
| 24 | Data and Result of the Test of Significance of Difference between the Mean Post test Scores and Retention test Scores of Creativity of Experimental Group (2) : (Humanities) | 265 |

Chapter One

INTRODUCTION

- * *Need and Significance of the Study*
 - * *Special Significance of the Study*
 - * *Title of the Study*
 - * *Definition of Key Terms*
 - * *Variables of the Study*
 - * *Objectives*
 - * *Hypothesis*
 - * *Methodology*
 - * *Scope and Limitations of the Study*
 - * *Organization of the Report*
-
-

INTRODUCTION

The 21st century and beyond signals an era of unprecedented breakthroughs in technology and constant change in many aspects of life. Educators are therefore challenged more than ever before with the need to develop graduates who will be adaptable in fast-changing environments. As civilization and cultures continue to advance, education is forced to adapt and change as well. Educational goals have changed with historical development and needs of humanity, initially concerned with transmitting the rudimentary skills required for physical survival; the traditional emphasis on academic disciplines is grossly inadequate.

The primary aim of education is to develop the unique and innate potentials of an individual to the maximum fruition so as to enable them to lead a joyous, humane and meaningful life. Humanistic education puts a relatively greater importance on helping children to grow up in their own personal way into creative and interesting people.

Howard Gardner (1994) says "Creative or innovative thinking is the kind of thinking that leads to new insights, novel approaches, fresh perspectives, whole new ways of understanding and conceiving of

things. The products of creative thought include some obvious things like music, poetry, dance, dramatic literature, inventions, and technical innovations. But there are some not so obvious examples as well, such as ways of putting a question that expand the horizons of possible solutions, or ways of conceiving of relationships that challenge presuppositions and lead one to see the world in imaginative and different ways."

Certainly creative thinking is needed at individual and governmental levels to produce new opportunities in employment, information, education and leisure activities. Whilst assimilating that which he has inherited, and adapting himself to it, man must also preserve his essential individuality. Education must assist the society which nurtures it by inspiring each generation to add to the culture it has received by creating something new; there should be no passive acceptance of what has been handed down from the past. Serious consideration must therefore be given to the extent that non-conforming ideas can be considered as an asset for life in a conforming society.

Creativity can be regarded as not only a quality found in exceptional individuals, but also as an essential life skill through which people can develop their potential to use their imagination to express

themselves, and make original and valued choices in their lives. Societies of the 21st century require active participation in the fast changing 'Knowledge Age' in which there is an interaction between people, communities, creative processes, knowledge domains and wider social contexts.

Understandings of the nature of creativity have changed in scope and depth over the last hundred years. Many have focused on the characteristics of exceptional individuals in our culture, from van Eyk to Van Gogh, Darwin to Dawkins, and Telemann to Thelonius Monk. More recently there has been an acknowledgement of the creative potential of all individuals in different knowledge domains, or subjects not confined to traditional definitions of the 'arts' or 'sciences'. An ethos which encourages creativity in different communities and environments also has an influence on individuals and groups.

Creativity can now be recognised and valued at the level of individuals, peer groups or the wider society and considered as an essential element in participating in and contributing to the life and culture of society. There have been many attempts to define 'creativity' and useful theoretical frameworks have been formulated which describe the interaction between qualities in people and communities, creative

processes, subject areas and social contexts. The National Advisory Committee on Creative and Cultural Education of England (1999) draws upon a range of conceptualisations of creativity and presents a definition which is a useful framework for educators - 'imaginative activity fashioned so as to produce outcomes that are both original and of value'. This definition is helpful in that it expresses five characteristics of creativity: using imagination; a fashioning process; pursuing purpose; being original and judging value.

Creativity in education can encompass learning to be creative in order to produce work that has originality and value to individuals, peers and society, as well as learning to be creative in order to support 'possibility thinking' in making choices in everyday life.

It is said that fear and vanity are often the two emotions which prevent us from realising our potential in many areas of life, and addressing them takes confidence, trust and courage in individuals and within communities. New approaches to flexibility and exploration ways of working, teaching strategies, curriculum, assessment and management of time and resources in schools could be tried, but this will require the encouragement of an ethos of creative challenge and

celebration of imagination and ‘possibility thinking’ for teachers, learners and designers.

Relatively neglected and often ignored have been the higher skills of creative thinking and problem solving in our conventional educational practice. Instead of training and educating the students for the mastery of the instruments of learning and the awareness and understanding of oneself, the current system of education is excessively preoccupied merely with the accumulation of knowledge and memorization of information. Hence the students pay the least attention to the classroom teaching and learning process. To the students, education means blind swallowing of the self-study materials and guides available in the market even without chewing and masticating the fare that has been served. The net effect is, as the present condition of the society amply substantiates, the educational anemia, which only leads to engulfing chaos and destruction.

Successful life demands new ideas, new processes and their applications. This calls for, as recommended by psychologists with a humanistic bent, “psychological education”. Its goals include creativity, joy and awareness (Smith, 1975). “It is creativity that would bring more beauty, more music, better school, more jobs and even an end to hunger

and war. Happier living is one fruit of increased creativity. Creative power can bring progress in any phase of life” (Osborne, 1992) He further states that worry is essentially a misuse of imagination ‘Creativity is an essential life skill, which needs to be fostered by the education system(s) from the early years onward’ (Craft 1999, p137). Such a statement emphasises the importance of playfulness, imagination and creativity in learning for children, young people and adults and the role that schools might play in promoting these qualities in learning experiences (Anning 1994; Shagoury-Hubbard 1996; Whitaker 1997).

If the learners, the builders of tomorrow, are to face their life successfully with freedom they need to be trained to use the imagination to brighten up life and to get ahead. With explosive and astonishing technological and scientific advancement proceeding at the rate of geometric progression, a generally passive and culture-bound people cannot cope with the multiplying issues and problems of the modern world, unless individuals and groups can imagine, construct and creatively revise new ways of relating to complex changes. If it is otherwise the result would be catastrophic as it may lead to individual mal- adjustment and group tensions.

“To foster individual development, educators must seek the gifts in every child, in those not demonstrating academic abilities as well as in the most brilliant. Instead of stifling thinking, creativity, and interest development, educators must encourage these behaviors. Currently, a big discrepancy exists between the child's potential and what schools actually value or stimulate.” Leonora M. (1988)

It is an undeniable fact that lack of creative effort is often there at the bottom of mental unrest and nervous upsets. It is a paradox that on the one side there is a desperate need for people who are creative and at the same time at the other side psychosis is gripping the learning atmosphere and affecting the student's mind adversely as there is no effort to steer it into creative channels. So suitable learning experience, conducive to the development of creativity, must be provided for the students in the classroom.

Within the last decade, technological changes and advances in communication have catapulted society into what is now being coined “The Age of Information.” To better prepare students as productive, self-sustaining contributors to society; educational institutions must move away from current pedagogical methods that are dependent solely on rote memorization and learning of facts. Given the dynamics and

complexity of the world today, what is learned at this time may not necessarily hold true one to ten years later. Students must thus be prepared to respond to changes within a dynamic society. They must be flexible and develop creative problem-solving skills enabling them to be responsive in any give situation. Essentially, students must learn to think on their feet and adapt quickly by understanding patterns and making connections that lead to the production of new and viable ideas (Tomlinson, et al., 2002; Kвашny, 1982)

With the demand from industries to produce potential employees who are creative thinkers or to produce individuals who can effectively work in an organizational climate conducive to creative/innovative thought processes, educational institutions must examine programs and procedures that enhance creative thinking processes. Clark (2002) has suggested that school environments often do not encourage creative thought. Often, creative thinking tends to be inhibited due to “supervisory restrictions, deadlines, evaluation, peer pressure, and reward structures” (p. 88). In addition, traditional conformist educational settings lead students to the point of discarding creative thought processes altogether (Clark, 2002).

Most teachers recognize that students benefit when their learning is connected to real life events, issues and concerns. No longer are students passive vessels in which static knowledge is to be poured and good grades are determined by how well they recite what was put in. Students require active engagement-with knowledge, with teachers and with their peers. And, in order for their active engagement to be productive, it is best done in a safe, caring and respectful classroom environment. When students feel they belong to a community of learners, ideas can be expressed openly without attack or judgment. When students do not feel safe to be themselves, when they are more worried about their status and image, when they do not have the skills to make good decisions and handle day-to-day conflicts, they are less likely to tap into the full extent of their potential as students-and as members in a learning community.

NEED AND SIGNIFICANCE OF THE STUDY

Helping students become more effective thinkers is a fundamental goal in education. In recent years societal demands for higher order thinking has generated a strong interest among educators in the teaching of thinking skills.

It is often claimed that school-leavers who can think critically and respond creatively will more likely be able to meet the challenges of the 21st century by contributing positively to the personal, social, technological and economic worlds that they will inhabit as adults (Welle-strand & Tjeldvoll, 2003). Such an ability is seen as crucial by writers such as Csikszentmihalyi (1996, p.6) who claims that “our future is now closely tied to human creativity”. This wish for school-leavers who can think creatively is reflected in national curriculum documents throughout the world that include aims referring to problem solving, creativity, entrepreneurship and innovative thought. Such curriculum statements assert that creativity can be taught. There is support for this position from academics and researchers (Murdock, 2003; Runco, 2003). This stance is also supported by groups such as the American Association for Childhood Education International who assert that the creative process must be recognised as “socially supported, culturally influenced and collaboratively achieved” (Jalongo, 2003).

The National Curriculum handbook (p 11-12) outlines the importance of creativity : By providing rich and varied contexts for pupils to acquire, develop and apply a broad range of knowledge, understanding and skills, the curriculum should enable pupils to think

creatively and critically, to solve problems and to make a difference for the better. It should give them the opportunity to become creative, innovative, enterprising and capable of leadership to equip them for their future lives as workers and citizens.

It should enable pupils to respond positively to opportunities, challenges and responsibilities, to manage risk and to cope with change and adversity. Creative thinking and behaviour can be promoted in all national curriculum subjects and in religious education. Pupils who are creative will be prepared for a rapidly changing world, where they may have to adapt to several careers in a lifetime. Many employers want people who see connections, have bright ideas, are innovative, communicate and work well with others and are able to solve problems. In other words, they need creative people.

By promoting creativity, teachers can give all pupils the opportunity to discover and pursue their particular interests and talents. We are all, or can be, creative to some degree. Creative pupils lead richer lives and, in the longer term, make a valuable contribution to society.

Pupils who are encouraged to think creatively and independently become:

- more interested in discovering things for themselves
- more open to new ideas
- keen to work with others to explore ideas
- willing to work beyond lesson time when pursuing an idea or vision.

As a result, their pace of learning, levels of achievement and self-esteem increase.

According to Guilford (1958), “development of creativity on the part of students will depend upon changed attitudes of both the teacher and student” (p. 16). Current studies indicate creative behavior can be learned and environments best suited for developing creative thought are those that encourage active student participation. Research has further suggested that educators examine current practices and develop methods designed to enhance creative thought processes. This involves faculty members becoming creative thinkers as well, especially as they embark on designing educational programs in which students actively participate in developing creative outputs rather than just mere exposure to creative

materials. To accomplish this, educators need to know their students and the needs of these students. They must examine their role as teacher.

The ideal world should consist of 'autonomous, creative and emotionally secure people (Brumfit, 1982) and education should and can assist in the creation of such a world. Personal growth and professional qualification are no longer in opposition, but complement each other. New forms of language learning are based on principles which give learners the chance to develop both these aspects together. Pragmatic and constructivist approaches start from the experience and the motivation of students and stress the fact that all forms of learning must make sense to the learners. These principles of foreign language learning were mainly developed in the context of teaching general language proficiency. Modern language programmes in schools should aim to develop progressive independence of thought and action combined with social responsibility, as well as acceptance and respect for the cultures of other peoples. The investigator feels that all these can be achieved by the use of communicative language teaching approach.

The *communicative language teaching* approach places much emphasis on the development of linguistic competence. Characteristics of the approach include: the goals of language use for communication;

use of real-life communicative situations in classroom learning; emphasis on two-way communication; sufficient exposure to the target language; and development of all four language skills (listening, speaking, reading, and writing). The teacher acts as manager of learning activities, advisor during activities, co-communicator, motivator, and evaluator. The student's role is primarily as communicator. Instructional materials serve to promote language use. Classroom procedures are both pre-communicative and communicative.

The researcher feels that modern language programmes based on communicative approach in schools can do a great deal in developing progressive independence of thought and action combined with social responsibility.

Education as a continuing, life-long process aims at the steady development of free, creative, individuals as active participants in democratic citizenship. Teachers have the opportunity and the responsibility to expand their role to that of cognitive and affective physician in the classroom, diagnosing learning and social ailments and offering courses of healing. Such an approach to teacher/student roles focuses on the learner as a potential responsible member of society, and concentrates primarily on helping him or her to develop the critical-

thinking and problem-solving skills necessary if he/she is to make a positive contribution to that society.

Deliberately designed and effectively executed instructional strategies are the tools that can bring about this revolutionary change in the society. As the classrooms are the workshops where India's destiny is being shaped, the methods and modes of teaching in the classrooms need to be revised and reformed to meet these ends.

Creativity is essential to learning and using language. Imagination and creativity are involved when language resources are selected and adapted to express meaning, and when meaning is inferred from the language of other people.

Children can be creative with language at any level of knowledge and at any age. One of the key processes underlying creativity is analogical reasoning, where connections are made between one thing or idea and another. Analogical reasoning produces metaphors in writing and in thinking; it helps the learning of spelling and reading; it helps make sense of the world, of the new and unfamiliar by connecting to what is already known about.

Creativity is culturally evaluated, and children learn as they grow up what is valued as creative and what is not. Creativity involves taking risks and children learn which risks are appreciated in schools and which are not. If we want to encourage creativity in children's language use, we have to give them space to experiment and encouragement to take risks.

SPECIAL SIGNIFICANCE OF THE STUDY

Creativity has become a major buzzword in recent years. Scholars in the arts, psychology, business, education, and science are all working to gain a deeper understanding of this abstract concept. At present, most educational systems do little to foster creative thinking. Instead, schools are more concerned with preparing students to memorize facts and learn procedures. In order to prepare students for a technological society, schools must engage in methods that will nurture creative thinking.

Krishnamurti (1992) says "Any form of education that concerns with a part and not with the whole of man inevitably leads to increasing conflict and suffering".(P. 38)

The importance of good methods of teaching has been stressed by Secondary Education Commission in these words, "Any method, good

or bad, links up the teacher and his pupils into an organic relationship with constant mutual interaction, it reacts not only on the mind of the students but on their entire personality, their standards of work and judgement, their intellectual and emotional equipment, their attitudes and values. Good methods which are psychologically and socially sound may raise the whole quality of their life, bad methods may debase it”(Kuppuswami, 1980)

Despite the recognition that the educational environment plays an important role in developing students' creative expression, few attempts have been made to examine the effect of the teaching strategies for developing language skills on the creativity level of the students . The purpose of this study was to investigate the development of creativity in the classroom environment.

The government is beginning to recognise that young people need to develop the creative skills that will be necessary in the workplace of the future. Fast-moving technology and the increasing demands for flexibility and imagination mean that all our pupils need to be able to pose questions such as ‘what if ...?’, ‘why?’ and ‘why not?’

It is also more than likely that, as young people start their careers, they will move jobs several times and will need the ability to cope with change so that they can produce creative solutions to increasingly complex environments. Creative teaching practices will help prepare them for this – promoting the ability to solve problems, think independently and work flexibly.

Keeping all these philosophical, psychological and sociological implications of education in mind the investigator as a working teacher of English in a higher secondary school often employs certain special strategies of teaching effective communication skills in the classroom. Since the activities and programs connected with the teaching of different lessons and various grammar items, provide the students with ample opportunities and encouraging environment for interaction, and divergent thinking, the investigator feels and found it worthwhile and rewarding to take up a research study to find out the effect of certain special strategies of teaching English on nurturing creativity in the higher secondary school students. In addition to that the researcher after a detailed exploration in to the research literature widely available to him found that no attempt has been ever made to investigate the effect

of communicative language teaching strategies on the dependent variable selected by him for the present study.

There is an added significance to the present investigation as sample for this study consists of higher secondary school students. The higher secondary students at the peak of their adolescence are in their transitional period both in the physical and mental spheres and are ripe enough to acquire the higher order thinking skills.

More over the preliminary review of literature revealed that no study is conducted using the strategies of language teaching selected by the investigator and their effect on nurturing creativity in the higher secondary school students. The investigator felt the need to explore this area and hence the present study.

TITLE OF THE STUDY

The study is entitled as “EFFECT OF CERTAIN STRATEGIES OF TEACHING ENGLISH ON NURTURING CREATIVITY OF HIGHER SECONDARY SCHOOL STUDENTS”

DEFINITION OF THE KEY TERMS

This part of the study briefly explains the definitions of the key terms used in the title.

Effect

Good's dictionary of Education (1973) defines 'effect' as "the treatment or the effect of an experimental factor for a given level of value of a control variable; the effect of an experimental factor under controlled conditions, that is with other factors held constant"

The term effect as used in the study stands for the condition resulting when the effect of one factor is dependent on the presence or absence of another factor or condition.

Strategies

Generally Teaching Strategies refers to the ways teachers structure learning activities. Stones and Morris (1997) defines strategy as a generalized plan for a lesson which include structure, desired learning behaviour in terms of goals of instruction and an out line of planned tactics necessary to implement the strategy.

In the present study, strategies stands for the conscious language teaching activities employed by the investigator in the classroom for facilitating English language skills in the students.

English

In the present study 'English' denotes the English syllabi prescribed for XI standard students of Kerala state.

Nurturing

Biswas and Aggarwal in *Encyclopedic Dictionary and Directory of Education* (1971) defines 'nurturing' as all environmental influences, whether of education, training or physical growth and metabolism that affect and determine the development of the child.

In the present study 'Nurturing' is the Experiment that will be conducted by providing appropriate environment through language learning activities which hoped to foster Creativity.

Creativity

Even though many in many ways have defined the term creativity, the definition the investigator proposes for the operation of the study is as follows

Creativity is the combination of fluency, flexibility, elaboration and originality of ideas as is measured by the Divergent Production Ability Test.

Higher Secondary School Students

Higher Secondary School Students are students who study in XI and XII standards in any higher secondary school recognized by the Govt of Kerala. The investigator employed the students of standard XI as the sample for the present study.

VARIABLES OF THE STUDY

The Independent and Dependent variables of the study are as follows.

Dependent Variable

Following is the dependent variable selected for the present study

(a) Creativity.

Independent Variables

The independent variables selected for the study are:

(1) Certain strategies for teaching English used by the investigator

(A) Strategy for Developing Speaking skills

(B) Strategy for Developing Vocabulary

(2) Grammar- Translation Method of Teaching English.

OBJECTIVE OF THE STUDY

The principal objective of the present experimental study is, to find out the effect of certain strategies of teaching English on nurturing Creativity of Higher Secondary School students.

HYPOTHESIS OF THE STUDY

There will be a positive effect for the select strategies of teaching English on nurturing Creativity of the Higher Secondary School students.

METHODOLOGY

The methodology followed in the present study is presented in the following sections.

(A) Design of the Study

Since the present study is an Experimental one, the investigator used the Pre test Post test- Equivalent Groups Design.

(B) Sample for the Study

The present Experimental study was conducted on a total sample of 160 first year Higher Secondary School students from four intact classes of 40 students each; from the same school .Of which two

classes were treated as Experimental groups and the other two as Control groups. The sample was thus equated on age and other pertinent variables except for the independent variables employed for the treatment.

(C) Tools used for the Study

The following tool is used to measure Creativity.

- Divergent Production Ability Test (Sharma, 1987).

(D) Procedure

The procedure adopted for the study is as follows:

The present study was to find out the effect of certain strategies of teaching English on nurturing creativity of Higher Secondary Students. During the pre-treatment period of the study the tool for measuring Creativity was administered to both the Control and Experimental Groups.

As a part of the treatment the Control group was taught selected lessons from the prescribed English text using the grammar translation method. The two Experimental groups were taught the same lessons using the select strategies of teaching English formulated by the investigator. The first experimental group was taught using the Strategy

for Developing Speaking Skills and the second experimental group was taught using the Strategy for Developing Vocabulary. The strategies ranged from simple language games to brain storming sessions involving pair work and group work in the classroom. The treatment continued for two months.

After the completion of the treatment in both the groups, the tool for measuring Creativity was administered again to both the Control and Experimental Groups as post- test and as retention test for both experimental groups.

Finally the pre- test, post-test and retention test scores of both groups were analyzed to see if there is any evidence significant enough to prove the effectiveness of the teaching strategies used by the investigator for nurturing the dependent variable selected for the study.

(E) Statistical Techniques used for the Study

The statistical techniques used for analyzing the data was the test of significance of the difference between uncorrelated means and test of significance of difference between correlated means.

SCOPE AND LIMITATIONS OF THE STUDY

An attempt has been made here to examine the scope and limitations of the procedure adopted in the study, though the description of the study detailed above are sufficient to convey the scope and limitations of the investigation.

The present study has been designed as an experimental one and aimed to find out the effect of certain strategies of English language teaching on nurturing creativity of the higher secondary school students. The importance of creativity is increasing on an unprecedented scale in the modern world in all walks of life. Though there are a lot of recommendations and policies lay emphasis on the need to nurture creativity in the class rooms, few practical attempt to incorporate it in the curriculum in effective manner has been reported. Many experts proposed different strategies for fostering creativity in the class room. In the present study the investigator selected creativity as the dependent variable, and the strategies of teaching English language skills as the independent variables. Thus the study is practically relevant as it tries to examine the effect of certain strategies of teaching English on nurturing creativity of the students in the natural classroom environment.

Proper curriculum transaction cannot be overlooked while attempting to nurture any skills in the students. In this study the investigator, as teacher of English selected and employed the language teaching activities with an end in view to nurture the students' creativity.

The selection of the activities included in the two strategies are done by giving due consideration to divergent thinking. The decision was taken on the basis of the available research findings and theoretical indications.

Simple experimental design was selected and significance of pre-tests and post- tests were analysed for the effect of the strategies on nurturing Creativity, as the investigator employed and investigated three strategies of teaching i.e., Strategy for Developing Speaking Skills, Strategy for Developing Vocabulary as experimental treatment and Grammar- translation Method as control treatment. For this, two experimental groups and two control groups were selected for the treatment.

The sample is limited to one school alone but the size was appropriate for an experimental study. Though student specific variables

were ignored due to unavoidable reasons, all the groups were equivalent for institutional variables.

The dependent variable was measured using the Divergent Production Ability Test. Due care has been taken to see that the data gathered by the tool were valid and reliable.

The experimental procedure of the study was framed based on the developmental theories, learning theories and also on the basic philosophies of adolescence education. So it may be presumed that the experimental procedures are valid and their effects generalisable to other similar samples to a considerable extent.

Appropriate techniques for analyzing data were also used in the study. Thus the investigator had tried to make the study as valid and dependable as possible.

Eventhough the investigator was careful enough to maximize the generalizability of the study the following limitations also have crept into it.

1. Since it is a Pre-test Post- test design the presence of some extraneous variables could have occurred in the experiment, which could not be controlled by the investigator.

2. Due to practical difficulties the treatment was given only for two months and only a number of lessons could be dealt with.

In spite of these limitations, it is hoped that the study would not affect credible and dependable findings that would provide a room for the teachers to think seriously of the language teaching process in connection with the cognitive needs of the students who are in the labyrinth of their adolescence.

ORGANISATION OF THE REPORT

The report has been presented in five chapters.

The **chapter 1 Introduction** presents the need and significance of the problem, statement of specific problem, definition of key terms used, statement of the objective and hypothesis of the study and a brief procedure of the study and its scope and limitations of the study.

Chapter 2 presents the **Theoretical Overview of Creativity and related Literature**. The first part of this chapter contains the theoretical overview of the variables in detail and the second part contains the survey of related studies .

Chapter 3 describes in detail the **Methodology** of the study. It includes a detailed description of methodology adopted for the study, design of the study, variables, samples of the study, tools employed, data collection procedure and scoring along with experimentation and statistical techniques used.

Chapter 4 reports the **Analysis and interpretations** of the data , the results and major findings of the study and interpretation of the results.

Chapter 5 presents **Summary of Findings, Conclusions and Suggestions**. It includes the study in retrospect, statement of the problem, major findings, discussion, conclusion and interpretations, educational implications of the findings and suggestion for further research in the area.

Chapter Two

REVIEW OF RELATED LITERATURE

- * *Theoretical Overview*
- * *Review of Research and Related Studies*
- * *How the study is different from the
Earlier Studies*

REVIEW OF RELATED LITERATURE

The present study is to find out the effect of certain strategies of teaching English on nurturing creativity in the higher secondary school students. This chapter is divided into two major sections as given below.

1. THEORETICAL OVERVIEW OF CREATIVITY

2. REVIEW OF RESEARCH AND RELATED STUDIES

THEORETICAL OVERVIEW OF CREATIVITY

Creativity is essentially a human phenomenon closely linked with thinking and imagination. The history of civilization is essentially a record of man's creative abilities. The creative power is possessed by everybody and that there are many ways of stimulating and training it. Since the present study is focusing on the effect of certain language teaching on nurturing creativity it is necessary to understand the theoretical background of this variable.

Basic Concept of Creativity

The concept of creativity has traditionally proved an elusive one to pin down. Most of the dominant writers on creativity acknowledge a broad spectrum of activity which can be described as creative; even studies focusing on so-called creative people, such as Spiel & Von

Korff's (1998) study of politicians, scientists, artists and school teachers, produce a wide variety of descriptions. One major distinction made by analysts is that between 'high' creativity and ordinary, everyday, creativity.

Another of the distinctions is between creativity within specific domains as opposed to creativity as a separate process, applied within domains. The dominant/influential descriptions of creativity given below are in the main concerned with creativity in this latter, generic, sense.

Amabile (1996) had proposed a theory for the development of creativity. In her framework, creativity is hypothesized as a confluence of three kinds of resources: (i) creativity-relevant skills (across domains), (ii) domain-relevant knowledge and skills (domain-specific), and (iii) task motivation. Domain-relevant resources include factual knowledge, technical skills and special talents in the domain. Creativity-relevant resources include appropriate cognitive style, personality trait, conducive work style and knowledge of strategies for generating novel ideas. In specific, the major features of the appropriate cognitive style are the preference of breaking perceptual set and cognitive sets, keeping response options open, suspending judgment, etc. Furthermore, Amabile

(1996) had proposed that "intrinsic motivation was conducive to creativity; whereas extrinsic motivation was detrimental" (p.107). Concerning the nurturing of intrinsic motivation, Hennessey (1995) highlighted the importance of promoting a "playful attitude" in the environment. Persons, who are able to maintain playfulness, may continue to focus on the interest and enjoyment they derived from the task. They are more likely to keep their intrinsic motivation, even under external constraints. Humor, fun, and play take the brain from a cognitive, rule-bound state to a more fluid state where the whole body can work on a problem while the "thinking mind" is relaxed (Prouty, 2000).

In line with Amabile's social psychology approach, Nickerson (1999), in his review, suggested that numerous characteristics, competencies, traits, attitudes and other factors were associated with creativity, but most basic determinants to realize one's creative potential were affective (attitudinal, motivational) and not cognitive ones. Desire, internal motivation, and commitment are more important, than either domain-specific knowledge, or knowledge of specific creativity-enhancing techniques (Nickerson, 1999).

In support to their affective approach, Feldman (1988, 1999) suggested that creativity was rooted in the desire for creative change, i.e., "the conscious desire to make a positive change in something real" (Feldman, 1988, p.288). People's new creative efforts are inspired by the results of previous creative efforts. He emphasized that seeing the results of other people's creativity illustrated that it was possible to make a difference. He believed that the interaction with the creative efforts and products of others would have significant stimulation on ones' creativity. Other scholars (Sternberg & William, 1997) also emphasized that role model was one of the most important factors for the development of creativity.

In contrast to the affective approach, some profound scholars in creativity research, Guilford (1950), Torrance (1974), Wallach & Kogan (1965) and others, considered divergent thinking process as central to ones' creative process, and thus divergent thinking skills were crucial to ones' creative ability. Most of these scholars focused on three of the divergent thinking skills --- "fluency", "flexibility", and "novelty". With regard to fluency, Guilford (1950) stated that those people who produced large numbers of ideas were more likely to have significant ideas. For flexibility, he stated that creative people should be able to

change set easily and generate ideas from different perspectives. For novelty, he stated that creative people would have unusual but appropriate ideas. In recent literature, divergent thinking abilities were still widely accepted as a significant measure of ones' creative potential (Lubart, 1999; Runco & Nemiro, 1994). Influenced by these theories, many creativity enhancement packages in the past were designed for training mainly the diverging thinking abilities of participants (Ripple, 1999). However, this approach was challenged by some scholars (Crophley, 1999), who suggested that creativity development should be multi-faceted, taken into account the cognitive, affective, motivational, personal, and social factors, and should permeate the whole curriculum.

Definitions or Descriptions of Creativity

Definitions of creativity which have influenced thinking in the past include that developed by Torrance (1969), whose thinking dominated psychometric approaches to creativity in the USA and elsewhere as discussed earlier in this report. Torrance saw creativity broadly as the process of sensing a problem, searching for possible solutions, drawing hypotheses, testing and evaluating, and communicating the results to others. He added that the process includes

original ideas, a different point of view, breaking out of the mould, recombining ideas or seeing new relationships among ideas.

After reviewing a number of important literature on creativity, Mayer (1999) recently concluded that there was a consensus on the how to define creativity in terms of its products. Creative products have two criteria, i.e., novelty and appropriateness. For instant, Sternberg and Lubart (1999) stated, "creativity is the ability to produce work that is both novel (i.e., original, unexpected) and appropriate (i.e., useful, adaptive concerning task constraints)" (p.3).

Although Torrance's definition has been influential and is still considered by some to have value, as indicated earlier it is tied to a psychometric approach which has been widely criticized and is largely considered outmoded. More recent and commonly used definitions at the present time (2000) include the following, which can be grouped into high creativity and ordinary creativity.

High creativity

Some influential descriptions of high creativity, i.e. the sort of publicly acclaimed creativity which changes knowledge and/or our perspective on the world, include the following:

'The achievement of something remarkable and new, something which transforms and changes a field of endeavor in a significant way . . . the kinds of things that people do that change the world' (Feldman, Cziksentmihalyi and Gardner, 1994, page 1)

'Exceptional human capacity for thought and creation' (Rhyammer & Brolin, 1999, page 261)

'A person's capacity to produce new or original ideas, insights, restructurings, inventions or artistic objects, which are accepted by experts as being of scientific, aesthetic, social, or technological value' (Vernon, 1984, page 94)

'The ability to produce new knowledge' (Dacey & Lennon, 2000).

Some have also acknowledged the role of the wider cosmos in the creation of new ideas. For example, Khatena (1982) described creativity as three-dimensional, consisting of the person, the environment and the cosmos.

One of the difficulties with definitions which focus on extraordinary, or high, creativity is that it only applies to some extremely talented people, and may be of less relevance when focusing on the education of all pupils.

Ordinary or 'Democratic' Creativity

Perhaps more relevant to education is the notion of ordinary, or 'democratic' creativity. The phrase 'democratic' creativity was coined in the NACCCE Report (1999) to mean the creativity of the ordinary person, recognizing that all pupils can be creative.

All of the following definitions take as a fundamental assumption that creativity is something which all pupils can do:

'Imaginative activity fashioned so as to yield an outcome that is of value as well as original' (National Advisory Committee on Creative and Cultural Education, 1999, page 29, para. 26)

'It may be possible to discern three overlapping categories:

- *Free expression ('self-expression', 'improvisation', 'exploring unknown outcomes')*
- *Imaginative/associative thinking ('flexibility', 'a holistic approach', 'problem solving')*
- *critical thinking ('making conceptual decisions', 'making things happen', 'eclecticism')* (CAPE (UK), 1998, page 3)

The National Curriculum Handbook included creativity within the section on thinking skills:

'Creative thinking skills . . . enable pupils to generate and extend ideas, to suggest hypotheses, to apply imagination, and to look for alternative innovative outcomes.' (National Curriculum Handbook for Primary and Secondary Teachers, 1999)

'at the core of creative activity, I would posit the engine of 'possibility thinking' – and necessary to being creative I would specify insight . . . What I am concerned with . . . is the kind of creativity which guides choices and route-finding in everyday life, or what I have come to term 'little creativity'.' (Page 3) *'Creativity involves being imaginative, going beyond the obvious, being aware of one's own unconventionality, being original*

In some way. It is not necessarily linked with a product-outcome.'
(Craft, 2000)

'Creativity is the application of knowledge and skills in new ways to achieve a valued goal. To achieve this, learners must have four key qualities:

- *The ability to identify new problems, rather than depending on others to define them*
- *The ability to transfer knowledge gained in one context to another in order to solve a problem*
- *A belief in learning as an incremental process, in which repeated attempts will eventually lead to success*
- *the capacity to focus attention in the pursuit of a goal, or set of goals.* (Seltzer & Bentley, 1999, page 10).

Kirton (1989) has suggested that individuals can be classified into 'adaptors' or 'innovators' and that these are stable personality traits applying across contexts and across time.

A further problem arising from these definitions, and perhaps highlighted by Kirton's work, is the conceptual 'slippage' between ordinary creativity and the similar but distinct notion of adaptability.

Definitions of Creativity

There is a host of definitions for creativity as it arouses curiosity and interest among a wide variety of scholars-including philosophers, historians, educators, psychiatrists, and psychologists who view it from their own different angle of vision.

In the past the term 'creativity' has carried with it a halo of exclusiveness. Creative people were thought to be geniuses who possessed some rare innate qualities that raised them above the non creative mass of humanity. It is the scientific and rational research into it that removed the exclusiveness and its earlier connotations. It is now used in the sense of 'originality', 'progressiveness', 'novelty', or to any thing that meaningfully deviates from the norms.

Scientific investigation and studies in this area in the last few decades have led to a deeper and more realistic approach to creativity. As result of it the educationists and teachers became aware that all are born with creative potentials and if proper environment and techniques are provided this potential can be recognized and nurtured.

Torrance's (1962) definition of Creativity is often cited: it is the sensitivity to problems, deficiencies, and gaps in information; making guesses, formulating hypotheses; evaluating and testing; and communicating results McCracken (1998). Creativity is a complex of traits, skills, and capacities, including the ability to work autonomously, curiosity, unconventional thinking, openness to experience, and tolerance of ambiguity Adams-Price (1998); Albert (1996). Highly creative adults exhibit deep knowledge of and a strong bond with their

subject matter, as well as intrinsic motivation Amabile (1996); Keegan (1996).

Recently, more attention is being paid to social and environmental factors that influence creativity. Newer definitions describe creativity as the confluence of cognitive processes, knowledge, thinking style, personality, motivation, and environment over the life span, (Adams-Price 1998; Sasser-Coen, 1993). It is also associated with the creation of meaning and the drive for psychic wholeness, a way to address and resolve dissatisfactions and improve the quality of life.

For some people, creativity is an adaptive, innovative response to environmental sources of distress such as early death of a parent or other family problems, misfortunes, or conflicts (Adams-Price,1998); (Albert,1996), whereas in other people the coping mechanisms might be substance abuse, depression, or withdrawal McCormick and Plugge (1997).

A growing body of research is examining how environmental factors affect the creativity of men and women in different ways. For many women, creative expression is limited by their education and training, cultural standards, lack of social support, and traditional gender

expectations. Pohlman (1996) finds that, for men, creative identity is balanced by the experience of parenthood; for women, the two roles conflict. As parents, men preserve a creative space or "room of their own"; women cede this space to family demands. Women inventors McCracken (1998) cite gender discrimination as a hindrance to creative activity. Women artists describe difficult family-related choices they had to make that diverted them from their art, although such obstacles as lack of support, money, or child care contributed to the creative process and their identity as artists (Kirschenbaum and Reis 1997).

While intelligence plays an important role in understanding human behavior, it is through creativity that a human's ability to cope with challenging situations in novel and appropriate ways is understood, Ronald *et al.* (2000)

Creativity and creative people have been regarded with wonder and admiration for most of human history. It is fair to say that without creativity, human beings would have remained in a Paleolithic existence. Creativity is a central and powerful mode of human activity and thought.

More than 60 different definitions of *creativity* can be found in the psychological literature, and it is beyond the scope of this attempt to list them all. The etymological root of the word in English and most other European languages comes from the Latin *creatus*, literally "to have grown."

Perhaps the most widespread conception of creativity in the scholarly literature is that creativity is regarded to have occurred when there takes place the production of a creative product (for example, a new work of art or a scientific hypothesis) that is both *novel* and *useful*. Colloquial definitions of creativity are typically descriptive of activity that results in producing or bringing about something partly or wholly new; in investing an existing object with new properties or characteristics; in imagining new possibilities that were not conceived of before; and in seeing or performing something in a manner different from what was thought possible or normal previously.

A useful distinction has been made by Rhodes between the creative person, the creative product, the creative process, and the creative 'press' or environment. Each of these factors is usually present in creative activity. This has been elaborated by Johnson who suggested that creative activity may exhibit several dimensions including

sensitivity to problems on the part of the creative agent, originality, ingenuity, unusualness, usefulness, and appropriateness in relation to the creative product, and intellectual leadership on the part of the creative agent.

Boden (2001, p. 95) noted that it is important to distinguish between ideas which are psychologically creative (which are novel to the individual mind which had the idea), and those which are historically creative (which are novel with respect to the whole of human history). Drawing on ideas from artificial intelligence, she defines psychologically creative ideas as those which cannot be produced the same set of generative rules as other, familiar ideas.

Often implied in the notion of creativity is a concomitant presence of inspiration, cognitive leaps or intuitive insight as a part of creative thinking and acting. Pop psychology sometimes associates creativity with right or forehead brain activity or even specifically with lateral thinking.

Some students of creativity have emphasized an element of chance in the creative process. Linus Pauling, asked at a public lecture how one creates scientific theories, replied that one must endeavor to come up with *many* ideas — then discard the useless ones.

History of the Term and the Concept

The ancient Greeks had no terms corresponding to "to create" or "creator." The expression "*poiein*" ("to make") sufficed. And even that was not extended to art in general, but only to *poiesis* (poetry) and to the *poietes* (poet, or "maker") who *made* it. Plato asks in *The Republic*, "Will we say, of a painter, that he makes something?" and answers, "Certainly not, he merely imitates." To the ancient Greeks, the concept of a creator and of creativity implied freedom of action, whereas the Greeks' concept of art involved subjection to laws and rules. Art (in Greek, "*techne*") was "the making of things, according to rules." It contained no creativity, and it would have been — in the Greeks' view — a bad state of affairs if it *had*.

This understanding of art had a distinct premise: Nature is perfect and is subject to laws, therefore man ought to discover its laws and submit to them, and not seek freedom, which will deflect him from that *optimum* which he can attain. The artist was a discoverer, not an inventor.

The sole exception to this Greek view — a *great* exception — was poetry. The poet made new things — brought to life a new world —

while the artist merely *imitated*. And the poet, unlike the artist, was *not* bound by laws. There were no terms corresponding to "creativity" or "creator," but in reality the poet was understood to be one who creates. And only he was so understood. In music, there was no freedom: melodies were prescribed, particularly for ceremonies and entertainments, and were known tellingly as "*nomoi*" ("laws"). In the visual arts, freedom was limited by the proportions that Polyclitus had established for the human frame, and which he called "the canon" (meaning, "measure"). Plato argued in *Timaeus* that, to execute a good work, one must contemplate an eternal model. Later the Roman, Cicero, would write that art embraces those things "of which we have knowledge" ("*quae sciuntur*").

Poets saw things differently. Book I of the *Odyssey* asks, "Why forbid the singer to please us with singing *as he himself will?*" Aristotle had doubts as to whether poetry was imitation of reality, and as to whether it required adherence to truth: it was, rather, the realm of that "which is neither true nor false."

In Rome, these Greek concepts were partly shaken. Horace wrote that not only poets but painters as well were entitled to the privilege of daring whatever they wished to ("*quod libet audendi*"). In the declining

period of antiquity, Philostratus wrote that "one can discover a similarity between poetry and art and find that they have imagination in common." Callistratos averred that "Not only is the art of the poets and prosaists inspired, but likewise the hands of sculptors are gifted with the blessing of divine inspiration." This was something new: classical Greeks had not applied the concepts of imagination and inspiration to the visual arts but had restricted them to poetry. Latin was richer than Greek: it had a term for "creating" ("*creatio*") and for "creator," and had *two* expressions — "*facere*" and "*creare*" — where Greek had but one, "*poiein*." Still, the two Latin terms meant much the same thing.

A fundamental change, however, came in the Christian period: "*creatio*" came to designate God's act of "creation from nothing" ("*creatio ex nihilo*"). "*Creatio*" thus took on a different meaning than "*facere*" ("to make"), and ceased to apply to human functions. As the 6th-century Roman official and literary figure Cassiodorus wrote, "things made and created differ, for we can make, who cannot create."

Alongside this new, religious interpretation of the expression, there persisted the ancient view that art is not a domain of creativity. This is seen in two early and influential Christian writers, Pseudo-Dionysius and St. Augustine. Later medieval men such as Hraban the

Moor, and Robert Grosseteste in the 13th century, thought much the same way. The Middle Ages here went even further than antiquity; they made no exception of poetry: it too had its rules, was an art, and was therefore craft and not creativity.

All this changed in modern times. Renaissance men had a sense of their own independence, freedom and creativity, and sought to give voice to this sense of independence and creativity. The philosopher Marsilio Ficino wrote that the artist "thinks up" ("*excogitatio*") his works; the theoretician of architecture and painting, Leon Battista Alberti, that he "preordains" ("*preordinazione*"); Raphael, that he shapes a painting according to his idea; Leonardo da Vinci, that he employs "shapes that do not exist in nature"; Michelangelo, that the artist realizes his vision rather than imitating nature; Giorgio Vasari, that "nature is conquered by art"; the Venetian art theoretician, Paolo Pino, that painting is "inventing what is not"; Paolo Veronese, that painters avail themselves of the same liberties as do poets and madmen; Federigo Zuccaro (1542-1609), that the artist shapes "a new world, new paradises"; Cesare Cesariano (1483-1541), that architects are "demi-gods." Among musicians, the Dutch composer and musicologist Jan

Tinctoris (1446-1511) demanded novelty in what a composer did, and defined a composer as "one who produces *new* songs."

Still more emphatic were those who wrote about poetry: Capriano (1555) held that the poet's invention springs "from nothing." Francesco Patrizi (1586) saw poetry as "fiction," "shaping," "transformation."

Finally, at long last, someone ventured to use the word, "creation." He was the 17th-century Polish poet and theoretician of poetry, Maciej Kazimierz Sarbiewski (1595-1640), known as "the last Latin poet." In his treatise, *De perfecta poesi*, he not only wrote that a poet "invents," "after a fashion builds," but also that the poet "*creates anew*" ("*de novo creat*"). Sarbiewski even added: "in the manner of God" ("*instar Dei*").

Sarbiewski, however, regarded creativity as the exclusive privilege of poetry; creativity was not open to visual artists. "Other arts merely imitate and copy but do not create, because they assume the existence of the material from which they create or of the subject." As late as the end of the 17th century, André Félibien (1619-1675) would write that the painter is "so to speak [a] creator." The Spanish Jesuit

Baltasar Gracián (1601-1658) wrote similarly as Sarbiewski: "Art is the completion of nature, as it were *a second Creator*..."

By the 18th century, the concept of creativity was appearing more often in art theory. It was linked with the concept of imagination, which was on all lips. Joseph Addison wrote that the imagination "has something in it like creation." Voltaire (1740) declared that "the true poet is creative." With both these authors, however, this was rather only a *comparison* of poet with creator.

Other writers took a different view. Denis Diderot felt that imagination is merely "the memory of forms and contents," and "creates nothing" but only combines, magnifies or diminishes. It was precisely in 18th-century France, indeed, that the idea of man's creativity met with resistance. Charles Batteux wrote that "The human mind *cannot create*, strictly speaking; all its products bear the stigmata of their model; even monsters invented by an imagination unhampered by laws can only be composed of parts taken from nature." Luc de Clapiers, marquis de Vauvenargues (1715-1747), and Étienne Bonnot de Condillac (1715-1780) spoke to a similar effect.

Their resistance to the idea of human creativity had a triple source. The expression, "creation," was then reserved for creation *ex nihilo* (Latin: "from nothing"), which was inaccessible to man. Second, creation is a mysterious act, and Enlightenment psychology did not admit of mysteries. Third, artists of the age were attached to their rules, and creativity seemed irreconcilable with rules. The latter objection was the weakest, as it was already beginning to be realized (e.g., by Houdar de la Motte, 1715) that rules ultimately are a *human invention*.

In the 19th century, art took its compensation for the resistance of preceding centuries against recognizing it as creativity. Now not only was art regarded as creativity, but *it alone* was so regarded. When later, at the turn of the 20th century, there began to be discussion as well of creativity in the sciences (e.g., Jan Łukasiewicz, 1878-1956) and in nature (e.g., Henri Bergson), this was generally taken as the transference, to the sciences and to nature, of concepts proper to art.

Creativity in Psychology and Cognitive science

The study of the mental representations and processes underlying creative thought belongs to the domains of psychology and cognitive

science. Creativity has also been studied from the perspective of cognitive science

A psychodynamic approach to understanding creativity was proposed by Sigmund Freud, who suggested that creativity arises as a result of frustrated desires for fame, fortune, and love, with the energy that was previously tied up in frustration and emotional tension in the neurosis being sublimated into creative activity. Freud later retracted this view.

Graham Wallas, in his work *Art of Thought*, published in 1926, presented one of the first models of the creative process. In the Wallas stage model, creative insights and illuminations may be explained by a process consisting of 5 stages:

- i. *preparation* (preparatory work on a problem that focuses the individual's mind on the problem and explores the problem's dimensions),
- ii. *incubation* (where the problem is internalized into the subconscious mind and nothing appears externally to be happening),

- iii. *intimation* (the creative person gets a 'feeling' that a solution is on its way),
- iv. *illumination* or insight (where the creative idea bursts forth from its subconscious processing into conscious awareness); and
- v. *verification* (where the idea is consciously verified, elaborated, and then applied).

In numerous publications, Wallas' model is just treated as four stages, with "intimation" seen as a sub-stage. There has been some empirical research looking at whether, as the concept of "incubation" in Wallas' model implies, a period of interruption or rest from a problem may aid creative problem-solving. Ward lists various hypotheses that have been advanced to explain why incubation may aid creative problem-solving, and notes how some empirical evidence is consistent with the hypothesis that incubation aids creative problem-solving in that it enables "forgetting" of misleading clues. Absence of incubation may lead the problem solver to become fixated on inappropriate strategies of solving the problem. This work disputes the earlier hypothesis that creative solutions to problems arise mysteriously from the unconscious mind while the conscious mind is occupied on other tasks.

Wallas considered creativity to be a legacy of the evolutionary process, which allowed humans to quickly adapt to rapidly changing environments. Simonton provides an updated perspective on this view in his book, *Origins of genius: Darwinian perspectives on creativity*.

Guilford performed important work in the field of creativity, drawing a distinction between convergent and divergent production (commonly renamed convergent and divergent thinking). Convergent thinking involves aiming for a single, correct solution to a problem, whereas divergent thinking involves creative generation of multiple answers to a set problem. Divergent thinking is sometimes used as a synonym for creativity in psychology literature. Other researchers have occasionally used the terms *flexible* thinking or fluid intelligence, which are roughly similar to (but not synonymous with) creativity.

In *The Act of Creation*, Arthur Koestler (1964) lists three types of creative individual - the *Artist*, the *Sage* and the *Jester*. Believers in this trinity hold all three elements necessary in business and can identify them all in "truly creative" companies as well. Koestler introduced the concept of *bisociation* - that creativity arises as a result of the intersection of two quite different frames of reference.

In 1992 Finke *et al.* proposed the 'Geneplore' model, in which creativity takes place in two phases: a generative phase, where an individual constructs mental representations called preinventive structures, and an exploratory phase where those structures are used to come up with creative ideas. Weisberg argued, by contrast, that creativity only involves ordinary cognitive processes yielding extraordinary results.

Creativity and Madness

A study by the psychologist J. Philippe Rushton found that creativity correlated with intelligence and psychoticism. Additionally, a different study found that creativity is greater in schizotypal individuals than either normal or fully schizophrenic individuals. While divergent thinking was associated with bilateral activation of the prefrontal cortex, schizotypal individuals were found to have much greater activation of their *right* prefrontal cortex. This study hypothesizes that these individuals are better at accessing both hemispheres, allowing them to make novel associations at a faster rate. In agreement with this hypothesis, ambidexterity is also associated with schizotypal and schizophrenic individuals. Creativity has also been associated with bipolar disorder.

Theories of Creativity

Creativity is in the discovery and expression of something that is both new and to the creator and an environment in its own right. Since there is no universally accepted theory of creativity, a number of relevant formulations -both past and present – are summarized here for the understanding of the subject matter.

Psychoanalytic theory

Psychoanalysis proposes that creativity wells up from unconscious drives. There are differing opinions about how this occurs, but the various psychoanalytic schools of thought generally suggest that creativity is a by-product of primary processes. Freud takes a pathological view of the creative process. This seems characteristic of his general view of man.

Freud felt only unhappy people experienced daydreams and fantasies; these are an integral part of the creative process. Freud said, "Unsatisfied wishes are the driving power behind fantasies; every separate fantasy contains the fulfillment of a wish, and improves the unsatisfactory reality" (Freud, 1908, cited by Arieti, 1976). To Freud there was great similarity between neurosis and creativity. He felt both

originated in conflicts stemming from wish fulfillment and biological drives. Creativity is the sublimation of sexual drives in the psychoanalytic depiction.

According to Freud, the creative person's curiosity about sexual matters starts at three years of age and has three outlets later in life: "...first is repression, which is quite energetic. The second outcome occurs when sexual investigation is not totally repressed but is coped with by thought processes or by compulsive defenses. In the third outcome which is the 'most rare and perfect type,' sexual curiosity is sublimated into that inquisitive attitude which leads to creativity (Freud, 1908, cited by Arieti, 1976). Other theorists in the Freudian school have built further on the premise that creativity is part of the mental functioning operative in the id; i.e., the individual uses it to seek pleasure and avoid pain.

Ernst Kris (1952, cited by Arieti, 1976) says the use of these primary processes in creativity is "a regression in service of the ego." He believes the process occurs in the preconscious, an area not momentarily in consciousness but easily accessible. Bellak (1958, cited by Taylor, 1988) further explains that all forms of creativity are "permanent operant variables of personality" through which the ego allows

preconscious and unconscious material to emerge. Lawrence Kubie (1958, cited by Arieti, 1976) adds that neurotic distortion can occur when the conscious mind inhibits "the [creative] process by rigid use of symbolic functions." Kubie says further, [the unconscious can] "hinder with even more rigid anchorage in unreality."

Two other Freudians address the source and motive of the creative act. Phyllis Greenacre (1957, cited by Samuels & Samuels, 1975) says that the future artist learns to disassociate with real objects and falls in love with the world as a whole. This happens through a heightened sensory awareness as early as breast feeding. Philip Weissman (1968, cited by Arieti, 1976) says these capacities may be the infant learning to "hallucinate the mothers breast independently of oral needs"; later in life this endowment is preserved and transferred into the creative act. The link between primary processes (specifically sexuality), and creativity is important.

Contrary to psychoanalytic intention, it inadvertently suggests there is an energy (biological creativity), which can be sublimated into higher psychological processes when the primary gratification urges of the id are inhibited. This suggests a discrete phenomenon, creativity that is equally operative as both a biological and psychological function.

Carl Jung (1953, cited by Arieti, 1976) extends creative functioning by further dividing artistic creativity into two categories, psychological art, and visionary art. It is psychological art which appears to be generated by primary processes.

Thus, psychoanalytic theory seems best able to explain psychological art and creative acts where the incentive is not the act itself, but rather relief from pain, anxiety, or sexual tension. Explaining creativity solely as sublimated sexual energy, and libidinal curiosity is, reductionistic and cannot interpret its entire dimension. Freud himself concluded in his Autobiographic Study: [Psychoanalysis]...can do nothing towards elucidating the nature of the artistic gift, nor can it explain the means by which the artist works; artistic technique (1908, cited by Arieti, 1976).

Behavioristic Theory

Sublimated libidinal drives do not explain all the dimensions of creativity; however, sexuality in some form appears in many explanations of creative behavior even if only in metaphor. B. F. Skinner, a radical behaviorist, does not assign creativity to these unconscious drives; yet, a quotation he consistently used to assert the

falsity of such assignment refers to this primal sexuality in life. In an essay "A Lecture on 'Having' a Poem" Skinner (1972, cited by Perkins, 1988) quotes Samuel Butler, "A poet writes a poem as a hen lays an egg, and both of them feel better afterwards." Thus, "The Behaviorist" indirectly relates creativity to reproductive drives. J.B. Watson (1913, cited by Frager, Fadiman, 1984) and others, developed behavioristic psychology early this century in response to psychoanalytic subjectivism. The basic premise is positivistic; it postulates that only what is observable is appropriate for scientific psychological study.

Creativity, thoughts, and emotions are unobservable internal processes; therefore, behaviorism is unable to explore the processes themselves. Radical behavioral psychology completely dismisses the concept of an "indwelling agent" which creates, thinks, or feels as metaphysic and without proof. Therefore, behaviorism confines its study to the behaviors associated with these processes.

J.B. Watson believed that the social environment conditioned the personality and its behavior. He studied the respondent conditioning associated with various stimuli. Conditioning from the social environment is then stored in the unconscious memory throughout one's

life. E.L. Thorndike (Reber, 1985) followed and formulated the "Law of Effect" which says that reward strengthens responses and failure to reward weakens them. Thorndike, and later B.F. Skinner, continued to study how these consequences, e.g., reward or lack of reward, influenced behavior over time. This conditioning is termed operant conditioning. Operant conditioning and unconscious memories are the primary elements in a behavioral explanation of creativity.

According to B.F. Skinner, creativity results from reshuffling psychic material which is unconscious to the individual and thereby only seems spontaneous (Skinner, 1972c, cited by Frager and Fadiman, 1984). The creative act, from a behavioral viewpoint, would be a cognitive behavior pattern which first accessed unconscious material and then synthesized it in the context of an immediate stimulus (problem). Then operant conditioning occurs as the tension subsides because the individual had found a successful solution. The individual may experience additional operant conditioning if other people praise the creative product. Thus as Skinner's refers to in "A Lecture on 'Having' a Poem" the artist has learned the creative response because it has the potential to make him feel better.

This accounts for some creative acts, but it lacks the magnitude to explain creativity which includes information impossible for the individual to have previously known it seems unreasonable to assume that a behavioral process could access and recombine that much unconscious material so rapidly and with such elegance. Behaviorism also inadequately explains acts such as Einstein's visions of riding on a light ray which led to the theory of relativity, or Kekule's vision of the Uroboros which inspired his chemical model of the benzene ring. Each of these represents man reaching beyond his current conditioning and knowledge to change his destiny.

Behaviorism is an excellent "lab animal" but in the "real world" it can not account for all creative endeavors. Its greatest strength is that experiments are precise and collect quantifiable data.

People like B.F. Skinner have characterized man as being molded, conditioned, and programmed by the environment in rigid, almost inescapable ways. Skinner should be appreciated for having shown the extent to which man can be affected in this manner; but...we must stress man's ability to escape his fate. Creativity is one of the major means by which the human being liberates himself from the fetters not only of his conditioned responses, but also of his usual choices.

Humanistic Theory

“The concept of creativeness and the concept of the healthy, self-actualizing, fully-human person seems to be coming closer and closer together, and may perhaps turn out to be the same thing”, (Maslow, 1963).

The above quotation shows the esteem with which humanistic psychologists view human nature. There are many individual theories within the field but the human capacity for growth is central in all of them. Creativity is essential to growth as the individual learns, and adapts to his environment and to an inner sense of values. As Maslow's statement indicates, this is part of being a healthy human being. Viewing human nature as a conscious, self-directed, self-actualizing, healthy process distinguishes humanistic psychology from psychoanalytic and behavioristic psychology. These latter psychologies see humankind and creativity in terms of base instincts and conditioned responses respectively. They see creativity as a way of compensating for areas otherwise lacking in the personality (Alfred Adler, 1956, cited by May, 1975, and Frager and Fadiman, 1984).

Humanistic psychology brings wholeness to the human being and the creativity process. Creativity infuses all of life. Abraham Maslow (1968) describes creativity in the life of his clients as follows:

“I learned from [them]...that a first-rate soup is more creative than a second-rate painting, and that, generally, cooking or parenthood or making a home could be creative while poetry need not be...”

A pioneer in humanistic psychology, Maslow describes creativity in three categories: primary creativity, secondary creativity, and integrated creativity. The first category describes creativity which proceeds from the primary processes, as Freud's psychoanalytic theory, but Maslow includes cognitive and conative processes in addition to the Dionysian drives of the id. He separates primary processes from "forbidden impulses" believing the first to be far less dangerous. Maslow "redeems" base human nature believing that creativity allows us to escape our fate much like Arieti (1976). Secondary creativity results from the use of higher thought processes; it is Apollonian. It takes over the creative process from primary creativity and adds to it analysis, discipline and hard work.

The often quoted statement "Genius is one percent inspiration and ninety-nine percent perspiration" seems descriptive of secondary creativity. Secondary creativity dominates during the verification stage (Wallas, 1926, cited by Koestler, 1964, Harman & Rheingold, 1984, and Dacey, 1989); it may also be the main process during the preparation stage but in a less refined form.

Maslow's final category is integrated creativity. This category fuses primary and secondary creativity: it is the source of the great works of art, philosophy, and scientific discoveries. This creative integration is also characteristic of the lives of self-actualized, healthy human beings. Integrated creativity in the arts appears to inhabit the same territory

Carl Jung described as "visionary art." As mentioned earlier, Jung (cited by May, 1975) divides artistic creativity into two categories; psychological art (already discussed); and visionary art which, "derives its existence from the hinterlands of the man's mind." The second category connects us with the super-human and timeless worlds beyond our conscious knowing. When an artist, in any field, approaches this category, he becomes the scout for all of humanity. He transcends his personal fate, and begins to speak to, and for humankind. The answer is

"channeled" through receptive individuals in response to the needs of the entire race. As channels of this greater vision, Marshal McLuhan, described creative people as the "dew line" for society at large who capture and express the spiritual meaning of the culture (May,1975).

The collective unconscious described by Jung ties the psyches of humanity together; creativity thus includes an expression of the needs of the race, not solely the individual. Creativity in this portrayal becomes a function of the "whole" of humanity: the creative individual, the creative process, and the creation form a gestalt within the context of this larger "whole."

Gestalt psychology deals with the perception of "wholes." It was founded as a separate school of thought in Germany early this century. A brief discussion is given here because of its more recent association with humanistic psychology. Max Wertheimer (1945, cited by Arieti, 1976) looks at all creativity from this Gestalt perspective. He says that the process moves from one unstable or unsatisfactory situation (S1) to one of greatest ability and thereby forms a new gestalt (S2) which includes the resolution of tension. Wertheimer believed that dividing the wholes into parts without losing track of the original totality was an important aspect of creative thinking. Wertheimer also says that in the

creative act the individual perceives some features of the final S2 from the beginning of the process; these features are the means through which the individual recaptures the final situation. Unfortunately, Wertheimer's theory does not explain how restructuring of S1 into S2 actually occurs. The importance of his theory is the emphasis on the process as a whole rather than as a linear sequence.

To Wertheimer the creativity process was "one consistent line of thinking... [which sought] the nature of their [the elements] intrinsic interdependence." Wertheimer, and the other models reviewed thus far, fail to grip the source of the process. They generally report the components of the process after it occurs the nature of the product, or the characteristics of the creative individual. From where does the new solution come? How is something brought into being where nothing previously existed?

The ability to encounter life in its fullest and engage with that part of it which is just beyond our senses is a prime characteristic of the creative act and individual, according to Rollo May (1975). May suggests: For the consciousness which obtains in creativity is not the superficial level of objectified intellectualization, but an encounter with the world on a level that undercuts the subject-object split.

"Creativity,...is the encounter of the intensively conscious human being with his or her world." The above quotation describes an encounter of such intensity that the polarity of the world around is overlooked. This parallels Maslow (1963) who says that during the creative encounter the individual is self-forgetful. Thus, becoming completely "lost in the present," the individual merges with the encountered and the subject-object split disappears. May metaphorically posits that the creative individual "knows" the subject in the "Biblical sense"; i.e., presenting the similarity between the creative act and sexual encounter. Sexuality and the union of opposites appear in many of the creativity theories thus far discussed.

However, May's correlation of creativity and sexuality is notably different from psychoanalytic theory. Freud saw creativity as sublimation of sexual, and other primitive drives. May uses the reference to sexuality as a healthy, engaging process. Creativity, like sexuality, is part of a full encounter with life: it is the "dance" that unites the opposites.

Uniting pairs of opposites is a theoretical premise of Arthur Koestler (1964) creativity theory. As an author, Koestler represents no particular psychological school of thought but has done much research

on the field of creativity. Koestler's premise on the creative process is "bisociation." Bisociation, a term Koestler has coined means to join unrelated, often conflictual, information in a new way. Koestler says it is being "double minded" or able to think on more than one plane of thought simultaneously.

Frank Barron (1988) also says the ability to tolerate chaos or seemingly opposite information is characteristic of creative individuals. In each of these theories, as May describes, resolution comes through intense encounter when as Maslow asserts, the individual is, "completely lost in the present."

Intense encounter, "lost in the present," suggests another phenomenon which accompanies the creative process, an altered state of consciousness.

Transpersonal psychology focuses on the higher aspirations of human growth and expanded states of consciousness. Stanislav Grof (1988), a transpersonal theorist and psychiatrist, listed four categories of creativity which he feels come from transpersonal sources in his work with altered states of consciousness.

The first category relates to problems which an individual has struggled with for years without finding a solution. This category contains Wallas's four stages, and is brought to resolution by the sudden streaming of illumination during a "non-ordinary" state. His example is also Kekule's discovery of the benzene ring in a dream mentioned earlier in this chapter.

A second category involves transmission of great ideas or systems of thought which go beyond the state of the art in the field to which they relate. An example of this is the concept of distribution of information about the universe found in the ancient Jainist theory of the jivas which resembles emerging holonomic theories of physics. Other examples are ancient Cosmo genetic systems which say light is the creative principle of the universe, a theory now being explored by research into the photon's role in subatomic particles.

The third category contains creative encounters which give a nearly complete product ready for implementation by society. The mythological story of Prometheus bringing fire to earth is an ancient example. Modern examples are; the work of Nikola Tesla who saw his inventions as finished working prototypes; Einstein riding on a light beam in his imagination and thereby understanding the theory of

relativity (previously mentioned); and Mozart who heard his compositions final form, all at once, inside his head. Grof postulates one final creative experience somewhat different than those just cited; it is an encounter with the Creator. This experience can be transforming for both the individual and society. Examples are Moses receiving the Ten Commandments or Mohammed's vision which founded Islam.

In these examples, creativity evolved spirituality in mankind. The many theories of creativity cover a range of human experience from the most primitive subconscious drives to contact with the divine.

When viewed independently, each theory is consistent relative to a specific field of human experience yet; many of these theories clash dramatically when contrasted with one another. Vaune Ainsworth-Land (1982) has examined the imaging and creative process and described four "orders" of the process and its product. Ainsworth-Land's theory is basically humanist.

First order creativity operates out of necessity. This area of creativity occurs in the learning process of a child. This order may also engage when there is an immediate urgent need such as a threat to survival. This area seems to correlate to psychoanalytic creativity

theories and development such as that described by object relations (Mahler, *et al.* 1975). It likewise relates to respondent conditioning in that it occurs spontaneously in response to immediate needs. Maslow's primary creativity is in this category. In this order there is no awareness of self, or ego, just spontaneous acts driven by primal needs.

Second order creativity involves analytic processes. The individual is self-aware and consciously involved in the project at hand. The process focuses on improvement, extension and evaluation. Maslow's secondary creativity fits this category this area also relates to higher ego functions described by psychoanalysis. It correlates with creative acts which behaviorism calls operant response; i.e., the individual is aware of their response and rewarded for it.

Third order creativity becomes more abstract. It deals with synthesizing and innovation. The product created is as much "new as old" (Ainsworth-Land, 1982). In this order the individual opens up to the process and gives up control and begins self-integration. This seems to be the beginning of Maslow's integrated creativity and the realm of Koestler's "bisociation."

The fourth order is, as Ainsworth-Land describes it, "the ultimate form of relatedness." This is the order in which Grof's fourth encounters occur. The self has merged with a larger reality and attained a transformed consciousness. In this order the individual attains "cosmic consciousness" (Bucke, 1906, cited by Ainsworth-Land, 1982) and beholds order in chaos without conflict.

It is clear that the various branches of psychology have different views of human experience which influence their theories of creativity. It is also evident there are common threads in many of the theories. All these psychologies see creativity as an encounter with and merging of divergent information but disagree about the source of that information and the procedure through which it is processed. Most creativity theories, with the exception of the behaviouristic ones, see creativity as a process through which the individual finds relationship with the environment. For psychoanalysis this is a neurotic function; for humanistic psychology it is a sign of health. With this wide divergence the only seemingly obvious conclusion is that the substance and source of creativity still elude a clear cut definition and description.

After reviewing a number of important literature on creativity, Mayer (1999) recently concluded that there was a consensus on the how

to define creativity in terms of its products. Creative products have two criteria, i.e., novelty and appropriateness. For instance, Sternberg and Lubart (1999) stated, "creativity is the ability to produce work that is both novel (i.e., original, unexpected) and appropriate (i.e., useful, adaptive concerning task constraints)" (p.3).

Amabile (1996) had proposed a theory for the development of creativity. In her framework, creativity is hypothesized as a confluence of three kinds of resources: (i) creativity-relevant skills (across domains), (ii) domain-relevant knowledge and skills (domain-specific), and (iii) task motivation. Domain-relevant resources include factual knowledge, technical skills and special talents in the domain. Creativity-relevant resources include appropriate cognitive style, personality trait, conducive work style and knowledge of strategies for generating novel ideas. In specific, the major features of the appropriate cognitive style are the preference of breaking perceptual set and cognitive sets, keeping response options open, suspending judgment, etc. Furthermore, Amabile (1996) had proposed that "intrinsic motivation was conducive to creativity; whereas extrinsic motivation was detrimental" (p.107). Concerning the nurturing of intrinsic motivation, Hennessey (1995) highlighted the importance of promoting a "playful attitude" in the

environment. Persons, who are able to maintain playfulness, may continue to focus on the interest and enjoyment they derived from the task. They are more likely to keep their intrinsic motivation, even under external constraints. Humor, fun, and play take the brain from a cognitive, rule-bound state to a more fluid state where the whole body can work on a problem while the "thinking mind" is relaxed (Prouty, 2000).

In line with Amabile's social psychology approach, Nickerson (1999), in his review, suggested that numerous characteristics, competencies, traits, attitudes and other factors were associated with creativity, but most basic determinants to realize one's creative potential were affective (attitudinal, motivational) and not cognitive ones. Desire, internal motivation, and commitment are more important, than either domain-specific knowledge, or knowledge of specific creativity-enhancing techniques (Nickerson, 1999).

In support to their affective approach, Feldman (1988, 1999) suggested that creativity was rooted in the desire for creative change, i.e., "the conscious desire to make a positive change in something real" (Feldman, 1988, p.288). People's new creative efforts are inspired by the results of previous creative efforts. He emphasized that seeing the results

of other people's creativity illustrated that it was possible to make a difference. He believed that the interaction with the creative efforts and products of others would have significant stimulation on ones' creativity. Other scholars (Sternberg & William, 1997) also emphasized that role model was one of the most important factors for the development of creativity.

In contrast to the affective approach, some profound scholars in creativity research, Guilford (1950), Torrance (1974), Wallach & Kogan (1965) and others, considered divergent thinking process as central to ones' creative process, and thus divergent thinking skills were crucial to ones' creative ability. Most of these scholars focused on three of the divergent thinking skills --- "fluency", "flexibility", and "novelty" . With regard to fluency, Guilford (1950) stated that those people who produced large numbers of ideas were more likely to have significant ideas. For flexibility, he stated that creative people should be able to change set easily, generate ideas from different perspectives. For novelty, he stated that creative people would have unusual but appropriate ideas. In recent literature, divergent thinking abilities were still widely accepted as a significant measure of ones' creative potential (Lubart, 1999; Runco & Nemiro, 1994). Influenced by these theories, many creativity

enhancement packages in the past were designed for training mainly the diverging thinking abilities of participants (Ripple, 1999). However, this approach was challenged by some scholars (Crophley, 1999), who suggested that creativity development should be multi-faceted, taken into account the cognitive, affective, motivational, personal, and social factors, and should permeate the whole curriculum.

Models of Creativity

One of the earliest models of the creative process is attributed to Graham Wallas. Wallas (1926) proposed that creative thinking proceeds through four phases.

The Wallas Model for the Process of Creativity

Preparation (definition of issue, observation, and study)

Incubation (laying the issue aside for a time)

Illumination (the moment when a new idea finally emerges)

Verification (checking it out)

Torrance (1988) asserts that Wallas' model is the basis for most of the creative thinking training programs available today. The inclusion of incubation followed by sudden illumination in this popular model may explain why so many people view creative thinking as a subconscious mental process that cannot be directed.

But note the first and last phases of Wallas' model. The notion that creative thinking begins with purposeful preparation and ends with critical verification suggests that creative and analytical thinking are complementary, rather than opposing. Creative thinkers study and analyze, but they have trained their perception mechanisms to notice things that others miss. Creative thinkers verify and judge, but they expect surprises and avoid judging prematurely.

The implied theory behind Wallas' model -- that creative thinking is a subconscious process that cannot be directed, and that creative and analytical thinking are complementary -- is reflected to varying degrees in other models of creativity.

One set of models relies heavily on the theory of subconscious mental processes and uncontrollable events. For example, Campbell (1960) and Simonton (1988) propose that creative ideas emerge from a largely uncontrollable Darwinian process of random variation and natural selection. The basic idea behind what they call the "chance configuration theory" dates back to the 1880s and the writings of psychologist William James. Specifically, the chance configuration model suggests that variations on ideas and concepts come about through random chance. For example, random factors accounted for the

mold that killed Alexander Fleming's laboratory bacteria cultures, leading to the discovery of penicillin. Similarly, random factors are also behind the sticker burrs that attached themselves to one's pants leg during a walk in the woods. But George de Mestral parlayed these random events into observations that led to the invention of Velcro.

Following a chance event, Simonton and Campbell suggest that creativity proceeds through a natural selection process that chooses and adapts those random variations that are most useful. In completing the third and final step of the model, the successful creator/innovator preserves and reproduces these ideas in concrete form (for example, penicillin or Velcro fasteners). While these last two steps of selection and preservation are analytical in nature, the key feature of the model is that the process is initiated by chance. Simonton cites classic cases of invention (like penicillin and Velcro), as well as anecdotal self-reporting from great creators like mathematician Henri Poincare and physicist Albert Einstein, to support this model.

Barron (1988) similarly places great emphasis on subconscious and chance processes in his four-phase, "psychic creation model."

Barron's Psychic Creation Model

Conception (in a prepared mind)

Gestation (time, intricately coordinated)

Parturation (suffering to be born, emergence to light)

Bringing up the baby (further period of development)

The tone of Barron's model supports the popular view of creativity as a mysterious process involving subconscious thoughts beyond the control of the creator.

In contrast to the prominent role that some models give to subconscious processes, Perkins (1981) argues that subconscious mental processes are behind all thinking and, therefore, play no extraordinary role in creative thinking. Just because we cannot fully describe our thought processes does not mean that we are not in control of them. For example, we cannot begin to describe all of the subconscious mental processes that are engaged in the simple act of picking up a coffee mug. But we are certainly in control of the overall act. Further, Perkins argues, just because random events play a part in some acts of creation, this should not be taken to imply that random events are the source of all acts of creation. Weisberg's (1993) review of the lives of great creators and so-called "moments of invention" supports Perkins' points by

demonstrating the years of conscious work and preparation on the part of the creator.

While some models make it appear that creativity is a somewhat magical process, the predominant models lean more toward the theory that novel ideas emerge from the conscious effort to balance analysis and imagination. For example, Rossman (1931) examined the creative process via questionnaires completed by 710 inventors and expanded Wallas' original four steps to seven.

Rossman's Creativity Model

1. Observation of a need or difficulty
2. Analysis of the need
3. A survey of all available information
4. A formulation of all objective solutions
5. A critical analysis of these solutions for their advantages and disadvantages
6. The birth of the new idea -- the invention

Experimentation to test out the most promising solution, and the selection and perfection of the final embodiment

Note that while Rossman still shrouds the "birth of the new idea" in mystery, his steps leading up to and following this moment of illumination are clearly analytical.

Alex Osborn (1953), the developer of brainstorming, embraced a similar theory of balance between analysis and imagination in his seven-step model for creative thinking.

Osborn's Seven-Step Model for Creative Thinking

1. **Orientation:** pointing up the problem
2. **Preparation:** gathering pertinent data
3. **Analysis:** breaking down the relevant material
4. **Ideation:** piling up alternatives by way of ideas
5. **Incubation:** letting up, to invite illumination
6. **Synthesis:** putting the pieces together

Evaluation: judging the resulting ideas

Note that Osborn implied purposeful ideation both in his notion of "piling up alternatives" and through his development of the rules of brainstorming as a tool for doing so.

The systematic combination of techniques for directed creativity and techniques for analysis continues as a strong theme in several, more recently proposed models. Parnes (1992) and Isaksen and Trefflinger (1985) outline six steps in their popular creative problem solving (CPS) model. (Tens of thousands of people have learned the CPS model and its

associated tools through the seminars conducted by the Creative Education Foundation in Buffalo, New York.)

The Creative Problem Solving (CPS) Model

1. Objective finding
2. Fact finding
3. Problem finding
4. Idea finding
5. Solution finding

Acceptance finding

Steps 3 and 4 (problem and idea finding) clearly require novel, creative thinking; while steps 1, 2, 5, and 6 require traditional skills and analytical thinking.

Koberg and Bagnall (1981) propose a similar balanced model in their popular book *The Universal Traveler*.

Koberg and Bagnall's Universal Traveler Model

Accept the situation (as a challenge)

Analyze (to discover the "world of the problem")

Define (the main issues and goals)

Ideate (to generate options)

Select (to choose among options)

Implement (to give physical form to the idea)

Evaluate (to review and plan again)

Again, notice that ideation, the traditional focus of creative thinking tools such as brainstorming, is preceded and followed by deliberate analytical and practical thinking. Also note the importance that Koberg and Bagnell place on accepting the situation as a personal challenge. This is consistent with the research into the lives of great creators that illustrates the importance of focusing and caring deeply. (See, for example, Ghiselin 1952, Gruber 1992, Weisberg 1993, Wallace and Gardner 1994). Finally, note that the final step of this model support the notion of continuous innovation.

The theme of creative and analytical balance is carried over into models proposed for specific applications. For example, consider Bandrowski's (1985) process for creative strategic planning.

A Model for Creative Strategic Planning

Analysis

standard planning

insight development

Creativity

creative leaps

strategic connections

Judgment

concept building

critical judgment

Planning

action planning

creative contingency planning

Action

flexible implementation

monitoring results

Notice the positive role of judgment in this model and the need for applying specific creative skills in insight development, creative leaps, and creative contingency planning.

Finally, it is important to note that not all models place the generation of new concepts in the mind as the "meat" of the sandwich between slices of analytical thinking bread. Consider Fritz' (1991) model, for example.

Robert Fritz' Process for Creation

Conception

Vision

Current reality

Take action

Adjust, learn, evaluate, adjust

Building momentum

Completion

Living with your creation

Fritz identifies the beginning of the process as the creative acts of conception and vision. This is followed by analysis of current reality, action, evaluation, public scrutiny (building momentum), and completion. Fritz also firmly asserts that the creative process is cyclical in nature. "Living with your creation" means purposeful noticing and analysis that leads to the next creative conception and vision.

Clearly, these modern models of the process of creative thinking are complex scripts for higher-order thinking. Regardless of the specific model we chose, we are called to engage in an intricate mental dance over an extended period of time. The complexity implied by this

balancing act is probably the reason why creative ideas are so rare. Even though we all possess the underlying mental building blocks for creative thinking, stacking the blocks just right is very difficult work!

Six-trait Snowflake Model of Creativity

This model of creativity was developed by Professor David Perkins(1998) and consists of the following steps:

1. ***A strong commitment to a personal aesthetic.*** Creators have a high tolerance for complexity, disorganization, and asymmetry. They enjoy the challenge of struggling through chaos and struggling toward a resolution and synthesis.
2. ***The ability to excel in finding problems.*** Scientists value good questions because they lead to discoveries and creative solutions, to good answers.
3. ***Mental mobility*** allows creative people to find new perspectives on and approaches to problems. Creative people have a strong tendency to think in opposites or contraries. They often think in metaphors and analogies and challenge assumptions as a matter of course.

4. *A willingness to take risks and the ability to accept failure* as part of the creative quest. These people also exhibit the ability to learn from their failures. By working at the edge of their competence, where the possibility of failure lurks, mental risk-takers are more likely to produce creative results.

5. Creative people not only *scrutinize and judge their ideas or projects, they also seek criticism*. Objectivity involves more than luck or talent; it means putting aside your ego, seeking advice from trusted colleagues, and testing your ideas.

6. The last trait is that of *inner motivation*. Creators are involved in an enterprise for its own sake, not for school grades or paychecks. Their catalysts are the enjoyment, satisfaction, and challenge of the work itself.

Myths about Creativity

There are deadly notions about creativity. Gamez (2003) enumerates these into ten and clarifies the misconceptions related with creativity. It given in the following part .

Myth 1. To be creative one must be totally original.

One can be highly creative without being in the least bit original. One can be fluent (prolific) or flexible (produce many different but not usual products)

Myth 2. Only Artists and Scientists are creative.

Most people have this misconception, consciously or unconsciously, and pay a high price for it. This misconception can cause one to give up exercising one's creativity muscles. According to the four fold criteria developed by Guilford non artist people can be more creative than many artists or scientists. Abraham Maslow, psychologist once said "a first soup is more creative than a second rate painting".

Myth 3. One needs a high IQ to be creative.

Most research shows that a high IQ is not required for creativity and may be negatively correlated with creativity.

Myth 4. Creativity means producing something tangible

This is only partially true. There are many intangible ways in which one can be creative. Miller (1988) enlisted seven ways in one can become creative. George Gamez (2003) presents seven more ways in which one can become creative.

Idea Creativity:-This includes an idea for a new game, a new way of cooking, or new way to market a product generating new ideas is definitely an important creative act.

Relationship Creativity: - Keeping relationships running smoothly and harmoniously requires imagination .Couples need inspiration and work to keep their relationship alive and interesting. Parents must creatively negotiate and reach compromises between feuding siblings.

Spontaneous Creativity: - spontaneous creativity is manifested in the improvisations of comedians and, in jokes and in the persuasive technique of the sales people.

Event Creativity: - event creativity is manifested in the planning and execution of various events like expo, wedding, tournaments etc

Organizational Creativity: - This particular creativity becomes apparent in organizing conventions rallies, support groups or build institutions to support worthy causes.

Inner Creativity: - the ability to control and organize one's inner world is also an act of creativity. Creating an inner world of peace and tranquility is a valuable skill. It can certainly help one to manage one's stress and keep one's mind clear. Navigating the inner world of dreams

and harmonizing conflicting elements of the inner world are other aspects of this type of creativity.

Myth 5.Originality is inborn

Originality is learned. One starts with imitation and little by little, modifies one's work. And originality is only one aspect of creativity.

Myth 6.Creativity is easy

Much hard work goes in to most worthwhile creative projects. It is not that easy and not all fun and games. Creativity involves struggling with all the demons and obstacles that keep the individual from fulfilling one's greatest and smallest dreams.

Myth 7.Creativity is good

This is a very popular and sometimes tragic misconception. Good is value judgment. What is good for one person may not be good for another. According to Jean Paul Sartre every act of creation is simultaneously an act of destruction. This has a greater implication for teaching for creativity. Children must not only be taught and nurtured creativity, but they must be guided toward ends that will improve the human condition.

Myth 8. Creativity is only for the young

Creativity output may decline with age but there are many examples of creativity abounding into ripe old age. Recent psychological research found that the work quality of artists, architects and composers usually remains the same and may even improve after age sixty.

Myth 9. Creative people are neurotic or crazy.

Recent research by Paul Janos (1997) has laid this myth to rest. Other studies with adults confirmed that, as a group, creative individuals are not neurotic and unhealthy.

Myth 10. Creative geniuses are experts on all topics

The popular media reinforce the belief that individuals who achieve fame and fortune have a magical insight is a throwback to the primitive belief that creative individuals and powerful people are closer to God.

Neurology of Creativity

The neurology of creativity has been discussed by Fred Balzac (2006) in an article on "Exploring the Brain's Role in Creativity".

Albert Einstein recognized that a useful approach to understanding the brain's role in creativity is to study the brains of highly-creative persons, and he willed that upon his death, before his body was cremated, his brain be removed for examination. Unfortunately, nearly all the 240 blocks into which it had been dissected were lost and never analyzed. Thirty years later, when the Brodmann's area 39 portion was analyzed histologically, it was found to contain an unusually high proportion of glial cells to neurons. Kenneth M. Heilman, M.D., has suggested that this high ratio was an indication of a high degree of "connectivity."

According to Heilman, connectivity is a key component of "creative innovation," a concept that combines two of the four stages of creativity — incubation and illumination (the other two are preparation and verification) — that were identified in the 19th century by Hermann Helmholtz.

Heilman (2002) and two medical colleagues have defined "creative innovation" as "the ability to understand and express novel orderly relationships." This requires high general intelligence, domain-specific knowledge, special skills, and "divergent thinking" (the ability to develop alternative solutions). But, in addition, creative innovation

may require co activation and communication between regions of the brain that ordinarily are not strongly connected.

Creative individuals such as Einstein may have alterations of specific regions of the brain's posterior neocortical region.

It has also been observed that creative innovation often occurs during times of diminished arousal (e.g., sleep) and that many well-known creative people have experienced depression. Both these observations suggest that alterations of neurotransmitters such as norepinephrine may play a critical role in creativity.

Thus, highly-creative individuals may be endowed with brains that are capable of storing extensive specialized knowledge in their temporoparietal cortex, be capable of frontal-mediated divergent thinking, and have a special ability to modulate the frontal lobe-locus coeruleus (norepinephrine) system, such that during creative innovation cerebral levels of norepinephrine diminish, leading to the discovery of novel orderly relations.

According to Heilman, (2003) "To be creative, people need to break away from what they have been taught to believe, and thus divergent thinking is a critical element of creativity. Patients who have

their frontal lobe[s] removed or injured cannot perform divergent thinking. [C]reativity... depend[s] upon the ability to diverge and then form innovative solutions."(P 369-379)

The development of innovative solutions depends on the ability to co activate anatomically distinct representational networks that store different forms of knowledge.

Many persons who are very creative show a higher incidence of mood and addiction disorders. While many neurologic disorders can reduce creativity, there are some that might enhance it. An example was a series of patients with frontotemporal dementia who acquired new artistic abilities despite deterioration in their left anterior temporal lobes. These persons with no prior history of artistic production became creative — perhaps because the deterioration on their left side "disinhibited" their right side, which then became artistically creative.

To arrive at a creative solution to a persistently insoluble problem, a person often must change the approach by which he has been attempting to solve the problem — must "think outside the box." In 1890, William James expressed the view that the ability to switch strategies is integral to divergent thinking. In 1931, Charles Spearman

suggested that creativity results from *bringing together two or more ideas that previously have been isolated*.

A number of scientists have reported solving a difficult problem while asleep or when falling asleep or waking from sleep.

There is also an association between creativity and novelty-seeking and high rates of alcoholism, drug abuse, bipolar depression, and unipolar depression among creative types such as writers, composers, musicians, and fine artists. This raises the question of whether treatment of depression and bipolar disorder affects creativity.

It is likely that creativity can be "encouraged." It has been known for decades that when young rodents are placed in a stimulating environment, they develop a much richer neural network. Bringing up children in an enriched environment and making certain that they receive a good education is important to their brain development.

The frontal lobes appear to be the part of the cortex that is most important for creativity, in that they are critical for divergent thinking and might modulate the co activation of diverse cognitive networks important to innovation. The development of the frontal lobes can be promoted by encouraging independent and divergent thinking.

There may be a limit to the extent to which creativity can be enhanced neuropharmacologically. There may be a price to be paid for thus altering a person's homeostasis.

The findings of contemporary neurology regarding the nature of creativity provide a physical substrate for manifestations of a *paradigm of paradigms* concerning creativity — concerning innovative thought — based on *recombinant conceptualization*. New concepts, sometimes entire new fields of study or practice, arise from cross-fertilization between fields that previously had not been linked. (The appearance, in a new context — in another person's or group's work — of elements from an earlier context, is referred to as an "influence" — etymologically, a "flowing in" of those elements.) It is, in turn, recombinant conceptualization that accounts for the striking phenomenon of multiple independent discoveries

Creativity Is Life.

In order to be recognized, the processes which form creation demand that unique ideas find inviting homes, Leslie Owen Wilson (1998). Ideas must seek development, production, refinement before they reach fruition and manifestation and for others to see their beauty or their worth. This process takes time and energy and tenacity as creators

become consumed with the tasks of taking ideas and making them visible, audible or usable. Therefore, if we say that we value creativity and its many processes and products, we must ultimately be willing to teach the art of reflective behavior and foster persistence in our young. However, developing these attributes in children takes the gift of time, and our children must be given that gift if they are ever to become truly creative. Children need time to discover, to explore, to experiment, to learn from mistakes, to adjust and realign their ideas, time to make corrections, time to dream, and to wonder "what if?" These are lifetime skills far beyond the measurement of common academic standards, well into and beyond our tomorrows.

It must be decided if creativity is really important to the maintenance and continuum of our culture. If our answer is "yes" then we must be willing to allocate the time necessary for the true development of creative spirits in our young people. And we must be sure to teach our children the art of reflective and persistent behavior and to allocate enough time for those attributes to grow and flourish. Being and feeling creative are often a state of mind and of being. Creativity is not always an act that relates specifically to the development of a product, the completion of a project, or to solving a

problem.. In this context learn to celebrate accomplishments, experience something new, take safe risks, and savor moments of joy. Learn to experience the wonders of life in new and different ways.

Here are some suggestions and starting places for creating joyful living suggested by Leslie Owen Wilson (1998):

- Reinvent oneself in some way -- discover a hidden talent; tackle something you've always wanted to do; take a new and different route home; comb your hair another way; try a new food.
- Throw something away that is no longer of personal use, or which has meaning or function and celebrate simplifying one's life. Literally say well by to this object, and enjoy the empty space.
- Rearrange or move something in one's home or office.
- Paint or clean something and sing or hum as one does it.
- Praise someone else's efforts -- out loud!
- Commit an act of random kindness or beauty. And, don't expect others to notice.
- Cheer for someone else, or for oneself
- Find something or someone to celebrate.



- Get excited about some little thing and show it.
- Laugh a lot. Laugh out loud.
- Buy some different type of music and play it loudly.
- Cook something you've never tried before, or order something you've never tried in a restaurant..
- Surf the Net on some bizarre topic.
- Have a conversation with or sing to something that isn't human.
- Get a massage, or a reflexology foot rubs and try to remain in that moment celebrating the gift of healing touch...?
- Say something nice to a total stranger.
- Anthropomorphize something non-living -- give it a name, does it have any human characteristics -- expensive toys, cars, appliances deserve naming!
- Create other celebrations, often.

Common Themes behind the Models of the Creative Process

While there are many models for the process of creative thinking, it is not difficult to see the consistent themes that span them all.

- The creative process involves purposeful analysis, imaginative idea generation, and critical evaluation -- the total creative process is a balance of imagination and analysis.
- Older models tend to imply that creative ideas result from subconscious processes, largely outside the control of the thinker. Modern models tend to imply purposeful generation of new ideas, under the direct control of the thinker.

The total creative process requires a drive to action and the implementation of ideas. We must do more than simply imagine new things; we must work to make them concrete realities.

Recording and Assessing Creativity

There is very little on the recording and assessing of creativity in the literature although in the field of psychometrics, creativity tests were historically used, for example those developed by Torrance (Torrance, 1966, 1974). Torrance described four components by which individual creativity could be assessed:

Fluency: the ability to produce a large number of ideas

Flexibility: the ability to produce a large variety of ideas

Elaboration: the ability to develop, embellish, or fill out an idea

Originality: the ability to produce ideas that are unusual, statistically infrequent, not banal or obvious.

More recently, however, teachers have preferred to use a variety of means to assess creativity, by monitoring pupils' work, behaviour and what they say (Fryer, 1996). Some attempts have been made to identify the criteria relevant to the assessment of creativity. For example, Besemer and Treffinger (1981) group these into:

Novelty - how new the product is in terms of techniques, processes, concepts; the capacity of a product to spark further creative products inspired by it; the potential of a product to 'transform', or create a radical shift in approach.

Resolution - the extent to which a product meets a need, or resolves a situation.

Synthesis - the extent to which a product combines elements which are unlike, into a coherent whole. Synthesis thus encompasses criteria such as complexity, elegance, attractiveness, expressiveness, completeness and the quality of its crafting.

Others (for example, Jackson and Messick, 1965 and Kneller, 1965) propose 'relevance' or 'appropriateness' as an additional and essential area of criteria. It could be argued that this set of criteria is implicit in the three groups of Besemer and Treffinger, as it would be difficult to imagine how a product could be novel without also being appropriate or relevant.

However, as Fryer (1996) notes, when considering the creativity of school pupils, there are some problems with such taxonomies of criteria. For example, how is novelty to be understood in the context of school pupils? In Fryer's study of 1,000 teachers, many suggested they preferred judging pupil's work against each individual's past performance. Thus something might be deemed to be original for a particular pupil.

Another area of difficulty concerns how comprehensive all criteria for assessing creativity must be. Work which succeeded in satisfying all or most of the criteria would be of a very high standard, with a potential for damaging pupil self-esteem. Fryer recommends that in the case of school pupils' creativity, much less stringent criteria are required, and that self-assessment should be encouraged.

Craft (2000), following the same line of less stringent criteria, nevertheless leaves assessment in the hands of the teacher, suggesting that the observation and recording by the teacher of the behaviour of young children is particularly significant, as this highlights what is then novel for the individual child as meaning maker.

A further area of difficulty highlighted by Fryer's study concerns teachers, in terms of the approach which they bring to the definition of creativity as a whole. For example, there are gender differences: female teachers seem to value the personal sides of creativity more than male teachers who place higher value on the elegance of an outcome, and this affects their judgments of pupil creativity. This finding was borne out by Stoycheyva's work (1996).

In addition, the teacher's subject area has an impact on their confidence as an assessor, for it seems that staff teaching art and design feel most confident about assessing creativity and other teachers are much less so. Stoycheva found that primary teachers were found to be reluctant to nominate children of either gender as non-original.

Turning finally to the wider context for assessing and recording creativity, there is a case for examining the relationship between

fostering creativity and the bureaucratic arrangements for the quality assurance of teaching and learning, including subject-centered level grading of achievements of both teachers and pupils. Some have used empirical studies to argue that such arrangements have led to the diminution of creativity in education (Jeffrey & Woods, 1998, Woods et al, 1997, Woods and Jeffrey, 1996).

Measurement of Creativity

Several attempts have been made to develop a *creativity quotient* of an individual similar to the Intelligence quotient (IQ), however these have been unsuccessful. Most measures of creativity are dependent on the personal judgment of the tester, so a standardized measure is difficult to develop.

Psychometric approach

J. P. Guilford's group, who pioneered the modern psychometric study of creativity, constructed several tests to measure creativity:

- Plot Titles, where participants are given the plot of a story and asked to write original titles.

- Quick Responses is a word-association test scored for uncommonness.
- Figure Concepts, where participants were given simple drawings of objects and individuals and asked to find qualities or features that are common by two or more drawings; these were scored for uncommonness.
- Unusual Uses is finding unusual uses for common everyday objects such as bricks.
- Remote Associations, where participants are asked to find a word between two given words (e.g. Hand _____ Call)
- Remote Consequences, where participants are asked to generate a list of consequences of unexpected events (e.g. loss of gravity)

Building on Guilford's work, Torrance developed the Torrance Tests of Creative Thinking. They involved simple tests of divergent thinking and other problem-solving skills, which were scored on:

- **Fluency.** The total number of interpretable, meaningful, and relevant ideas generated in response to the stimulus.

- **Flexibility.** The number of different categories of relevant responses.
- **Originality.** The statistical rarity of the responses among the test subjects.
- **Elaboration.** The amount of detail in the responses.

Social-personality approach

Some researchers have taken a social-personality approach to the measurement of creativity. In these studies, personality traits such as independence of judgment, self-confidence, and attraction to complexity, aesthetic orientation and risk-taking are used as measures of the creativity of individuals. Other researchers have related creativity to the trait, *openness to experience*.

Other approaches to measurement

Genrich Altshuller in the 1950s introduced approaching creativity as an *exact science* with TRIZ and a Level-of-Invention measure.

The creativity of thousands of Japanese, expressed in terms of their problem-solving and problem-recognizing capabilities, has been measured in Japanese firms.

Fostering Creativity

Daniel Pink, in his 2005 book *A Whole New Mind*, repeating arguments posed throughout the 20th Century, argues that we are entering a new age where creativity is becoming increasingly important. In this *conceptual age*, we will need to foster and encourage *right-directed thinking* (representing creativity and emotion) over *left-directed thinking* (representing logical, analytical thought).

Nickerson (1981) provides a summary of the various creativity techniques that have been proposed. These include approaches that have been developed by both academia and industry:

1. Establishing purpose and intention
2. Building basic skills
3. Encouraging acquisitions of domain-specific knowledge
4. Stimulating and rewarding curiosity and exploration
5. Building motivation, especially internal motivation
6. Encouraging confidence and a willingness to take risks
7. Focusing on mastery and self-competition

8. Promoting supportable beliefs about creativity
9. Providing opportunities for choice and discovery
10. Developing self-management (metacognitive skills)
11. Teaching techniques and strategies for facilitating creative performance
12. Providing balance

Some see the conventional system of schooling as "stifling" of creativity and attempt (particularly in the pre-school/kindergarten and early school years) to provide a creativity-friendly, rich, imagination-fostering environment for young children.

A growing number of pop psychologists are making money off the idea that one can learn to become more "creative". Several different researchers have proposed approaches to prop up this idea, ranging from psychological-cognitive, such as:

- Synectics;
- Purdue Creative Thinking Program; and
- lateral thinking (courtesy of Edward de Bono),

To the highly-structured, such as:

- TRIZ (the Theory of Inventive Problem-Solving);
- ARIZ (the Algorithm of Inventive Problem-Solving), both developed by the Russian scientist Genrich Altshuller; and
- Computer-Aided Morphological analysis (presented at Swedish Morphological Society).

Social Attitudes to Creativity

Although the benefits of creativity to society as a whole have been noted social attitudes about this topic remain divided. The wealth of literature regarding the development of creativity, and the profusion of creativity techniques, indicate wide acceptance, at least among academics, that creativity is desirable.

There is, however, a dark side to creativity, in that it represents a *"quest for a radical autonomy apart from the constraints of social responsibility"*. In other words, by encouraging creativity we are encouraging a departure from society's existing norms and values. Expectation of conformity runs contrary to the spirit of creativity. Nevertheless, employers are increasingly valuing creative skills. A

report by the Business Council of Australia, for example, has called for a higher level of creativity in graduates. The ability to "think outside the box" is highly sought after. However, the above-mentioned paradox may well imply that firms pay lip service to thinking outside the box while maintaining traditional, hierarchical organization structures in which individual creativity is not rewarded.

Ambivalence to creativity in the West may perhaps be due to the prevailing culture's image of creativity; the ingestion of drugs to generate visions; the celebration of eccentric behavior; a possible cross-over between creativity and mental illness; the often bohemian sexual tastes of artists; the culture's association of artists with a life of poverty and misery.

Characteristics of Highly Creative Individuals

Leslie Owen Wilson(2001) summarized the characteristics of highly creative people as following :

- Display a great deal of curiosity about many things; are constantly asking questions about anything and everything; may have broad interests in many unrelated areas. May devise collections based on unusual things and interests.

- Generate a large number of ideas or solutions to problems and questions; often offer unusual ("way out"), unique, clever responses.
- Are often uninhibited in expressions of opinion; are sometimes radical and spirited in disagreement; are unusually tenacious or persistent -- fixating on an idea or project.
- Are willing to take risks, are often people who are described as a "high risk taker, or adventurous, or speculative."
- Display a good deal of intellectual playfulness; may frequently be caught fantasizing, daydreaming or imagining. Often wonder out loud and might be heard saying, "I wonder what would happen if. . ." or "What if we change ...". Can manipulate ideas by easily changing, elaborating, adapting, improving, or modifying the original idea or the ideas of others. Are often concerned improving the conceptual frameworks of institutions, objects, and systems.
- Display keen senses of humor and see humor in situations that may not appear to be humorous to others. Sometimes their humor may appear bizarre, inappropriate, and irreverent to others.

- Are unusually aware of his or her impulses and are often more open to the irrational within him or herself. May freely display opposite gender characteristics (freer expression of feminine interests in boys, greater than usual amount of independence for girls).
- Exhibit heightened emotional sensitivity. May be very sensitive to beauty, and visibly moved by aesthetic experiences.
- Are frequently perceived as nonconforming; accept disordered or chaotic environments or situations; are frequently not interested in details, are described as individualistic; or do not fear being classified as "different."
- Criticize constructively, and are unwilling to accept authoritarian pronouncements without overly critical self-examination.

Thinking Patterns that Help Create New Ideas.

Leslie Owen Wilson (2004) after a detailed review summarized the following patterns that help one to be very creative

- Explore new ideas and learn to become flexible in thinking.

- Practice visualization -- learn how to create concept maps, illustrative schema, and sketch ideas out.
- Explore other fields looking for new theories and ideas that can be synthesized and adapted.
- Keep a record of the explorations. Keep an "Idea Journal"
- Learn to think of possibilities, diverge, and be expansive. Generate lots of ideas, and then refine them.
- Practice trying to look at things holistically and try to get the big picture.
- Learn to focus in on parts of a problem, and then come back out to the big picture.
- Don't get in a rut. Force one to try new things. Experiment with new strategies and play with ideas imaginatively.
- Think of oneself as an "idea artist" or an "idea vendor."
- Combine ideas. Let ideas and thoughts ferment and percolate and then revisit them.
- Take time to imagine new ideas and possibilities. Practice daydreaming.

- Look for ideas and inspiration in ordinary places. Scan books, magazines, articles, advertisements & photos for new ideas.
- Ask family members, friends, co-workers and even strangers for fresh perspectives.
- Brainstorm and free associate frequently.

Blocks to Creativity

To be creative means to be open to all alternatives. This open mindedness is not always possible to meet because all humans build up blocks or mental blocks in the maturation and socialization process.

Some of those blocks can have external causes, such as family environment, the educational system, and organisational bureaucracy. Other blocks are internally generated by persons reactions to external factors or by physical factors.

A key to improve creativity is to become aware of the blocks and do something about them. While everyone has blocks to creativity, blocks vary in quantity and intensity from person to person. Awareness not only permits us to know the strengths and weakness better but also gives the needed motivation and knowledge to break down these blocks.

Adams (1986) identifies the mental locks as perceptual, emotional, cultural, environmental, and intellectual.

Perceptual blocks are obstacles that restraint people from clearly perceiving either the problem itself or the information needed to register the problem. It is well known that eyes can deceive in observing some figures.

Emotional blocks restrict the freedom to investigate and manipulate ideas. They prevent the communication of ideas to others. These blocks are also called psychological barriers and are the most significant and prevalent blocks that impede innovation. Fear of something new is a common characteristic of many individuals in the developed world.

Cultural blocks are adapted by exposure to a given set of cultural patterns. The culture of the industrialised countries trains mental playfulness, fantasy and reflectiveness out of people by placing stress on the value of efficiency, effectivity and moneymaking. Taboos and myths are predominant blocks to creative behaviour. Therefore, it needs courage to be creative in a culture that does not support creative changes.

Environmental blocks are imposed by Individual's social and physical environment. Creative persons have usually had a childhood where they were free to develop their own potentialities. Amabile (1998) has documented that organisational climate can be a barrier or a stimulus to creative activities.

Intellectual blocks are caused by conservatism and lack of willingness to use new approaches.

The same approaches, the same tools and the same persons are tackling the same problems for years. Persons with intellectual blocks are usually very negative to changes and are fast to criticize new proposals.

The Creativity development is found to be blocked in several ways. Some of them is highlighted below. William Kaufman (1983) points out the following blockages that keep creative ideas from fully developing:

Tradition, Control, Overspecialization, Negativism, Prejudice, Fear of failure, Impatience, Uniformity, Fear of Ridicule , Conceit, Confusion, Insecurity, Jealousy, Group Pressure, Laziness, Apathy, Lack of

Commitment, Lack of Support, Intolerance, Tenseness, Fear of Change and Toxic Nostalgia.

Parents' Role

It is natural for young children to learn creatively by dancing, singing, storytelling, playing make-believe, and so forth. One of the first challenges to creativity may be formal schooling. By this time parents, as well as teachers, appreciate conforming behaviors such as being courteous and obedient, following rules, and being like others. While these are desirable traits to some extent, they may also destroy a child's creative potential. The following are some positive ways parents can foster and nurture the growth of creativity:

- ❖ Encourage curiosity, exploration, experimentation, fantasy, questioning, testing, and the development of creative talents.
- ❖ Provide opportunities for creative expression, creative problem-solving and constructive response to change and stress.
- ❖ Prepare children for new experiences, and help develop creative ways of coping with them.

- ❖ Find ways of changing destructive behavior into constructive, productive behavior rather than relying on punitive methods of control.
- ❖ Find creative ways of resolving conflicts between individual family members' needs and the needs of the other family members.
- ❖ Make sure that every member of the family receives individual attention and respect and is given opportunities to make significant, creative contributions to the welfare of the family as a whole.
- ❖ Use what the school provides imaginatively, and supplement the school's efforts.
- ❖ Give the family purpose, commitment, and courage. (Torrance, 1969, p. 59)

Role of School

Chris (2003) studied how the schools can make learning more creative. And put forward the following suggestions. Some of the practical suggestions are as follows.

- Find easy ways in to creative learning. Start with the classroom environment. Move onto how children and staff use talk and questions. Keep it manageable, keep the focus tight. Show and share tangible changes – this will give people the confidence to go for bigger things.
- One way to get into this is, on the surface, simple: stop the school, involve all staff, children and the community in designing and participating in an event to experience and celebrate creative learning. One head described how she took a primary school in crisis and began to rebuild its confidence through a whole school project: a forest filled the school, grew out into the local shopping centre, raising morale and involving every child in every class in the process.

Build an environment for creative learning

- Change the physical environment and “break the mould of what a school should look like”.
- Communicate key messages through your school environment, for example in celebrating and describe processes of creative learning in central areas and Classrooms.

- Decide together what an environment to support creative learning looks like – for example in celebrating pupil voice, in illustrating a range of views and perspectives, in showcasing creative arte facts – then work progressively to make this a reality.

Find space for creativity

- Think about how teachers use curriculum time.
- Allocate time “to being more adventurous with learning” – this might be a day or a week every term to help staff to “dare to be different”. It may be hard work but very enjoyable – “it’s scary at first”. It helps you see the children in a different light and change attitudes.
- From time to time, set up weekly projects across the whole school with a focus on creative learning.

Keep a clear focus on learning

- Redesign the way that the curriculum is delivered to reflect learning needs.
- Focus on one area at a time, for example in developing more creative learning in mathematics, to raise awareness and get staff thinking about applications in other subject areas.

- Organise a personal capabilities project where pupils have an opportunity to negotiate the aim of the project and are instrumental in designing how it is carried out.
- With younger children, use a regular session (for example, Friday afternoon) to reintroduce planned and structured play. This makes plain the place of imaginative play, exploration of role and empathy. As one teacher remarked, “Now it’s okay to have a space ship in the room!”

Place a high premium on shared professional learning and development.

- Recognise that focused professional development with practical outcomes really matters. More generally, find ways of experiencing as a team what it feels like to be a creative learner.
- Agree and provide key entitlements, such as the opportunity to work with artists, go to a theatre and learn a musical instrument.
- Develop a shared understanding of what you mean by creative learning. Be clear about and revisit such shared understandings. Use them to inform collaborative redesign of lessons and to challenge and measure the success of your work.

- Build an expectation of creativity into the school's learning policy and use this to give structure and focus to planning.
- Collaboration is vital. Working creatively is as much a matter of staff self esteem as anything. People need the confidence to do this and need to work together to overcome the 'cognitive dissonance' they may experience in re conceptualizing and planning learning in more creative ways. Planning together is articulating together what is meant by creative learning in really practical ways.
- Recognise that emotional literacy for adults is closely linked with this: explore this together.
- Include creativity in everyone's performance targets.

Build partnerships to sustain and enrich learning

- Work with higher education and other agencies to stimulate thinking, open up imaginative possibilities and resources.
- Use external professionals, such as a dance group, to help change the school ethos.
- Reach the point at which 'creativity' is the first word in the school prospectus.

Emerging messages

- Definitions of creative learning are elusive but clear, agreed understandings in school, developed and supported by sustained professional development, are essential.
- A culture of creative learning emerges through the values and vision of leaders, embedded in planning, monitoring and review.
- The issue of ‘permission’ is often seen as an impediment in highly accountable, risk averse cultures though this can be overcome through determined leadership.
- Schools place real value on local authorities and other partnerships which champion and promote creativity.
- Creative learning is not simply about promoting the arts (though it may do this) but enables children to think independently and learn to make connections in ways which are critically important in a rapidly changing world.
- Schools developing more creative approaches to learning find ways to overcome practical constraints of curriculum design and timetabling to give time for sustained creative learning. They often

promote processes of creative learning both in projects or 'special activities' and also through a consistent, practical and shared view of processes of creative learning applied in all planning and all subjects.

- A commitment to creativity needs to be articulated, described and reflected in the assessment of children's work.
- Creative learning involves schools in working more actively with their communities.
- There is some emerging evidence that a commitment to creative learning may be underpinned by wider management systems, such as those designed for the performance management of teachers.
- Coherent approaches to developing children's creativity are a challenge for all schools and all phases, not simply for primary schools but higher secondary classes as well.

Role of Curriculum

Creativity comes from sensing the limits, not by working to models, definitions, defined objectives in teaching, but by working with the script and with students in such a way that the script, the limits, can

be exceeded and new ways of being can be improvised and brought about.

Creativity is the dynamic in the process of life that enables us to find ever new ways of living together in and with the world. A creative person is someone who finds ways of doing this which play with the texture of our perceptions and show us that there are other worlds, for good and ill, and other ways of doing things and being human.

Clarke (2004), observes that “creativity” involves necessarily some “ingredients”: freedom from the subject/agent to be able to imagine something from a personal (often subjective) perspective. In a work of art, creativity inaugurates an open space where different readings, different sensitivities may converge. Connotation and ambiguity then may be a mark of creativity.

Creativity is thus the ability to re-define, re-create and/or re-produce things by firstly questioning them, then by looking at them from a fresher, different angle or perspective, and finally by formulating and/or producing a renewed, different alternative of the very thing that is being looked at. In order for this process to take place, a series of conditions need to be present along the way.

Meaning: firstly, the subject that is being tackled must be meaningful to the person or “creator”. Lack of meaning means lack of interest, lack of inspiration and thus lack of creativity. Secondly, the person will have a conscious or unconscious need to scrutinise, to question the subject or topic or interest area.

Questioning is thus an essential ingredient of creativity. Why is *it* this way? Why can't *it* be like that? What happens if I do *this* instead of *that*? These are some of the questions a creative person would ask.

Exploration: the creator or author, then, would need to spend time looking at ways in which to answer the array of questions initially posed, and the ones that spring out along the way. The student must be able to make new associations freely and without reference to existing rules or norms.

Experimentation results from exploration and this latter condition results in discovery. Whether the discovery conduces to a completely new subject or to exactly the same one that was being explored, the journey of such exploration and experimentation becomes the most informative and learning part of the creative process. However, there are some conditions that must be present throughout each one of the stages

of this long process; conditions without which, no matter how hard the person may try, no matter how interesting or relevant the subject might be, the creative endeavour may not be fully achieved and fulfilled.

Adaptation: Coming up with imaginative ways of doing what might be considered otherwise mundane tasks; the deconstruction and reconstruction of ideas and forms.

Open-mindedness or the ability to be flexible, both with the subject being explored and with oneself.

Insight: the creator shows originality or insight, which entails powers of analysis and synthesis, and can be relied upon to produce something different from other people; excels at innovation and execution and may or may not inspire others to be creative in either a practical or intellectual context.

Fearlessness or the lack of fear to try, to question things, to try again, to go against the current.

Innovation: an ability to come up with new ways of thinking and doing things, that are out of the ordinary and require imagination.

Abandonment and enjoyment, or the ability to give oneself in, to immerse oneself totally in, the experience - in short, to live *it* to its full. No creative activity would ever be complete, or would lead to a meaningful and relevant conclusion without any of the above conditions.

The question of what makes a creative individual, or *who is* and *who is not* a creative person must, therefore, be redefined and looked at, for the above mentioned abilities are all universal human characteristics that every single person is genetically endowed with at birth. Some may argue that talent is *the* key ingredient, but talent alone does not constitute enough fuel to drive creativity. However, the possession of a special talent is usually the determining factor between a good creative effort and a masterpiece. Similarly, a degree of intelligence is crucial to support, to underpin the whole creative process but in itself it does not guarantee a truly creative outcome, for in many instances other characteristics such as inflexibility can easily annul intelligence.

Risk-taking: the difference between an apparently more creative person and one who appears not to be so could arguably be measured by the ability to accept making, and to positively resolve, mistakes. Mistakes are an essential part of the exploration process and its conclusion. Even the most talented and intelligent of people make lots of

mistakes, but the successful ones are those who rely on their own tools to find a way through and succeed: self-awareness, self-belief, self-confidence, in short, resourcefulness and determination, even in the most hopeless of situations. Mistakes are, therefore, the most important teaching and learning experiences any person could possibly have, which both inform and fuel creativity. Therefore, not being afraid of making mistakes is paramount when trying out something new, when not knowing where it is all leading, or whether the questions will be satisfactorily answered. It is here, in this sticky, unknown, terrifying territory, where creativity is created, challenged and tested, and where truly creative solutions are reached.

Creativity across the Curriculum

Fryer (2004) after a detailed analysis of programmes designed to develop creativity concluded that

1. There are, broadly speaking, three very different approaches to developing creativity. In the United States, where the most influential core programmes have been developed, the emphasis is on active idea generation mainly for the purposes of invention, innovation and discovery. In Japan, the focus is contemplative

and concerned with keying into one's intuition, while in England creativity is seen very much in terms of the arts. Each perspective is valuable, but it seems important that any educational provision for developing creativity should reflect them all and cater for a range of different cultural needs.

2. Any programme which addresses creative education needs to cover every aspect of being creative, including motivational and emotional factors, the development of knowledge and skills, the capacity to imagine (especially via the arts) and the capacity to solve fuzzy problems using heuristics and insight learning (in mathematics and other areas such as drama).
3. The Synectics, Osborn(1953), Parnes(1973), and de Bono(1985) programmes each focus on an aspect of human cognition implicated in creativity, but none of them offers a totally comprehensive basis for creative education. It would seem sensible to incorporate teaching points derived from these and other programmes into the delivery of the school curriculum.
4. Torrance's (1972) approach is very comprehensive. It addresses creative education through a number of complementary strategies

and includes cross-cultural studies. This seems to offer a good model for creative education in England, if a version is developed which reflects this country's needs, especially in terms of multicultural provision.

5. It is vital that teachers have a good understanding of creativity and creative education. Many teachers are already doing impressive work that could be capitalised on, in collaboration with other providers, to put creative education firmly on the teacher training agenda. Some training could be provided online.
6. The extent to which traditional ways of measuring giftedness miss highly creative pupils needs further investigation, along with a consideration of the extent to which the widely used terminology 'gifted and talented' sounds elitist and transmits inaccurate and inappropriate messages.
7. A great deal of creative education focuses primarily on idea generation, which may be appropriate for pupils who find this difficult. However, one of the features of highly creative pupils is their capacity to generate ideas – often more than they can handle.

This raises questions about the way in which creativity should be developed in school.

Creativity and Modern Foreign Languages

A language is somewhat indefinable but has the scope for an enormous number of combinations and options. Although governed by rules, it offers immense scope for originality.

Languages are not always creative, but they have enormous potential to be so. They are used deliberately to create works of art, and for spontaneous communication. Learning a language may be a creative exercise because languages are so vast and complex, and each user needs to use and combine elements of knowledge in new ways constantly. The discipline of Modern Foreign Languages carries these associations, and uses them, without necessarily truly promoting creativity. Language study also lends itself to creativity as it can be seen to embrace other disciplines with endless scope for doing so in new ways.

MFL (modern foreign language) by its very nature involves communication - the human dimension of this is open to the imagination and individual character of each person. Work in the target language can

encompass an enormous variety of fields - all that human beings communicate about. This gives vast scope for creative responses and explorations.

In relation to the discipline of MFL teaching and learning, everything potentially embodies creativity. Language teaching is one of those very open and flexible areas where creative activities can be easily embedded in both the teaching activities as well as in the language curriculum. It is like having different ingredients to cook and being able to combine them differently each time in order to create as succulent a dish as one can manage to. Thus creativity lies in the ability to construct meaningful language from the building-blocks available and to express ideas using the resources available; but also, recognising that the resources can be adapted and that the language learner can often be in control of resources, rather than subject to their limits and restrictions. On another level, creativity also means the scope to play with language and ideas for their own sake.

Creativity is a favourable condition for FL learning, implying renewal (at several levels, namely linguistic and cultural). In order to avoid using dichotomic terms which usually put forward a reductionist, essentialist view, "creativity" at the end of a continuum line and would

place “reproduction” at the other end. In terms of an educational perspective “reproduction” embodies the traditional paradigm of education, privileging transmission and a conformist, passive reproduction of stereotyped forms. Opposing this conservative, functional environment where creativity was marginalized, now there are concepts such as “intercultural being” and “languaging” (Phipps and Gonzalez, 2004) that rely on creativity as a necessary condition for FL learning. Phipps and M. Gonzalez (2004) argue for teaching-and-learning as a space of shared exploration of personal responses and understandings and their exchange. In this sense “creativity” favours the discovery of different angles and involves a projection or an expression of a more intimate and engaged self. “Creativity” may be recognized and assessed alongside the above mentioned continuum in numerous ways. The above mentioned authors present several examples of this (pp. 96-97; 105; 106-107; 139) from where we may see that creativity often appears hand in hand with a critical voice.

The use of any language is inherently creative. Thinking, re-enacting the speech, thought and lexis of another foreign culture inspires creativity in itself. Examples would be the need for creativity as part of translation strategies, in oral communication (e.g. to paraphrase when

we don't know the exact word), and in written communication. An appreciation of creativity is also fostered through the cultural aspects of MFL courses, where students are normally exposed to a wide range of creative forms (literature, art, film, pop lyrics etc.) either because these are used as texts for language study or because they are part of separate courses that help students acquire an understanding of the culture(s) related to the language.

Creativity here may be twofold: a criterion to be present at the planning moment and at reflecting upon and sharing dialogically in class. Assessment of coursework should also involve sharing and the active participation of the students. Therefore the parameters (or levels alongside the continuum) of creativity that are to be assessed should be made clear with the students beforehand, to arise awareness and for clarification. If the teacher, acting as an example (in the sense of providing a model, not exempt from analysis or criticism), shows to be creative, s/he is also stimulating this quality in her/his students, making them active participants while contacting with the chosen materials and tasks, developing a critical approach to the FL linguistic and cultural space. From the perspective of the teacher (and to a different extent of the student as well) this may involve taking risks (as opposed to the

‘reproduction’ paradigm that implied a more secure and unchallenging method).

Teacher and student creativity in MFL will greatly benefit from a teaching/learning policy that promotes transferable skills. This can be best nurtured through a combination of analysis of language macro- and micro-features with direct language experience and practice based on spoken and written texts and their contexts. Incremental progression and cyclical revision will facilitate consolidation and further creative development. Regular assessment of learning progress will provide guidance to students and can also provide pedagogical findings which can contribute to a continual update of MFL frameworks. Individual teachers might pool their ideas so as to bring greater diversity to programmes - creative ideas are very often stimulated through group discussion and by having different perspectives.

Classroom practice can capitalise on the creative materials. Through authentic texts students will be experiencing the target language as it occurs naturally as well as the **pragmatics**, that is, interpretation of its utterances in context. This can be enhanced by spoken texts with a visual component as found typically in television broadcasts and films, where speakers and listeners can be seen in an

interpersonal context and non-verbal phenomena can be observed which reinforce the verbal exchanges, such as **paralinguistic functions** of gesture, facial expression and body language. Students will also receive explicit information for a more conscious learning of the semantic, grammatical and phonological characteristics of the TL. With this compounded assistance, students can themselves be creative in their foreign language learning process.

Substitution is a flexible tool for student creativity at different stages of development, within the safety of a correct syntactic pattern. For beginners, basic dialogues can be personalised by substituting the student's name, place names, and so on. At advanced stages, a court case interaction could be the object of dialogue variation for students preparing to become public service interpreters.

Intertextuality and **register identification** can play a significant role in student creativity and are particularly relevant at advanced stages of language learning. Intertextuality can be explored in both literary and non-literary texts, both synchronically and diachronically. Sensitising students on register will equip them to make appropriate language choices according to situational context, intention and audience. Students are best encouraged to be creative when they are

given independence to choose their own focus for tasks, and, indeed to decide what they will study. Students might be encouraged to be creative by involving them in decisions about how and what should be taught in the language classroom (Clarke,2004)

MFL teachers may encourage students to take active participation in the class by promoting a friendly, mutually beneficial atmosphere and emphasising that individual participation is crucial to collective learning. The teacher him/herself should engage in class activities (e.g. mimicking, role-playing, etc) and ask for students' feedback on issues related to language. Thereby students begin to perceive the classroom context not as an arena where to compete, but as a meeting point where to learn from each other. Once the antagonistic/fear barrier is broken, creativity will express itself more easily. Students will be more willing to have their say. Needless to say, however, that the success of any approach is greatly dependent on the in-class chemistry.

More time in the curriculum needs to be put aside for students to interact creatively with the material: for example, a stimulus text quickly followed by student-centred activities where students themselves search for, present and discuss material.

Stimulating and supporting the work of students outside the classroom will also be an area in which staff demonstrate creativity.

Teaching Approaches to Developing Creativity

There is some evidence from pre-school research (Angeloska-Galevska, 1996) that certain characteristics of the teacher are correlated with the extent to which creativity is effectively fostered with pupils. These include the teacher's attitude toward creativity, social relations between teacher and pupil, the provision of optimal materials and perhaps most significantly, the educational level of the teacher (university-educated teachers were found, in this study, most likely to foster creativity).

Clearly this evidence begs questions about the possible relationships between values and attitudes, educational level, intelligence and pedagogic repertoires. It has also been suggested (Sternberg & Lubart, 1991) that the ideal learner is often characterised as one who conforms, a model which does not appear to embrace pupil creativity. As they say, 'to engender creativity, first we must value it!' (Page 614). The role of the mentor in fostering creativity has been

documented by many in the literature (Beetlestone, 1998, Craft, 2000; Fryer, 1996; Shagoury-Hubbard, 1996; Torrance, 1984).

Essentially, the research suggests that the provision of a role model, who can provide a learner with an apprenticeship approach to developing creativity, is a powerful aid to fostering their creativity. The mentor may be an adult (for example, a teacher or someone from beyond the school itself), or indeed another pupil.

What is clear from the literature is that practical strategies depend on the theory of creativity which underpins pedagogy. The most common examples in the international community at present may be grouped into five areas: those emphasising the creative cycle, single-strategy approaches, multistrategy approaches, system approaches and those emphasising overall pedagogic criteria. Some dominant approaches within these categories are described below. It will be seen that the strategies draw upon specific parts of the fields which study creativity, as mapped out earlier in this review.

‘Creative cycle’ approaches

‘Creative cycle’ approaches are those based on the processes of creativity originally proposed by Storr (1969) but then developed by

others such as Guildford (1973), and much more recently by Kessler (2000), who describes the stages as preparation, incubation, inspiration or illumination and verification.

Preparation, she suggests, involves the gathering of skills, principles and data, a time of discipline and focus. Incubation by contrast involves the doing of nothing, 'letting go'. This is an essential fallow period, of receptivity and openness, sometimes even chaos or muddle (and thus offers a potential challenge in the classroom). Inspiration, or illumination, comes directly out of the incubation space. Finally verification involves the refining of the outcome. Craft (2000) adds on the start of the next cycle at the end of the last one. Such process approaches when developed in the classroom may involve offering pupils specific kinds of experience. Both writers suggest the need to foster in pupils and teachers the ability to:

Be open to possibility, the unknown and the unexpected bridge differences

Make connections between apparently unconnected ideas and integrate different ways of knowing (for example, physical, feeling, imagining)

Hold the paradox of form and freedom

Hold the tension between safety and risk

Be willing to give and receive criticism

Be aware of the individual.

Balke (1997) suggests that, in early childhood and primary education, play is essential in the development of creativity. The association of play with creative development can be misleading although some play may be creative. Play is necessary to creativity, but not all play is necessarily

Creative (Craft 2000). For example, snakes and ladders is not creative whereas hide and seek or other dramatic play may be. Hence the early years early learning goal 'creative development' which incorporates play, may be slightly misleading in that not all play is creative.

Single-strategy approaches

One well-known single-strategy approach is De Bono's (1985) 'six hats' method. Some schools already use this and it is used in other organisational contexts. Based on his view that creative thinking is essentially 'lateral thinking', this is a method developed to encourage

the viewing of any issue from a number of different perspectives. The idea is that, when 'wearing' any one of six possible fictional coloured hats imbued with certain qualities, the thinker emphasises certain approaches to thinking.

Another is Craft's 'possibility thinking' (2000). Here the idea is essentially that pupils are encouraged to approach learning across the curriculum with a 'what if?' attitude. In other words, with a questioning approach which wonders about possibilities and is both prepared to follow, and be supported in, seeing the questions through to an outcome.

Multi-strategy approaches

Shallcross (1981) identified a range of strategies important in pedagogical approaches to creativity. These include allowing adequate space and time for developing a creative response to any given situation. She suggests that teachers often intervene too early in a child's thinking process, preventing pupils from working out ideas for themselves. In addition, she suggests that it is essential to provide an overt 'mental climate' in the classroom which includes fostering self-esteem and self-worth and the valuing of achievability, i.e., setting tasks for children which are achievable, in order to build their confidence.

The emotional climate of the classroom should enable each child to grow in security and personal confidence without constant scrutiny. As Shallcross puts it, 'The ground rules are personal guarantees that allow [pupils] to grow at their own rate, retain the privacy of their work until they are ready to share it, and prize their possible differences' (1981, page 19).

System approaches

Edwards & Springate (1995), writing of the Reggio Emilia approach to fostering creativity in the Italian pre-school, suggest a range of teaching system strategies which enable the modification of classrooms to support children's creativity. It is important to realise, however, that they are discussing mainly artistic creativity. The pedagogical strategies they name are listed below:

Time – giving children adequate time to finish their work, so they are not artificially rotated or asked to move on before they are ready

Space – offering children the physical space to leave work from one day to the next without it being destroyed; also providing a bright working space with harmonious colours, furnished with child-sized

areas and examples of their own and others' work including that of known artists, and including appropriate and inviting materials

Rich resource materials – these are particularly useful when the children themselves have helped to select them. Resource materials may be bought, found or recycled and include, they suggest, paper goods of many kinds, tools for writing and drawing, construction and collage materials, including buttons, shells, beads, seeds and stones, as well as sculpting materials such as shaving cream, clay and play dough

Climate – the atmosphere in the classroom, they propose, should encourage risk taking, making mistakes, innovation and uniqueness, alongside mess, noise and freedom, whilst in an overall environment of order. Teachers themselves should be encouraged to experiment alongside the children

Occasions – teachers should provide a variety of exciting and intense encounters for the children between their outer and inner worlds. The stimulus of field trips, visitors to the classroom, the introduction of specific artefacts, animals or plants to the learning environment, and so on, can be intensified, they suggest, by representations both before and afterwards.

These pedagogic strategies reflect studies done beyond schools, such as that by Greenberg (1992) investigating the creativity of fashion design students at college in the USA. She discovered that those students who were more creative had more choice in identifying which problems they were going to work on and took more time over completing their task. She also found that such students expressed more positive feelings about their work, an important point for school teachers, for it could be argued that fostering a positive attitude to one's own creativity is an essential starting point.

Sternberg & Lubart (1991) propose what they call an 'investment theory' of creativity which is influential in creativity discourse internationally. They suggest that it is possible to create, or foster, creativity in children and adults and that this involves teaching them to use the following six resources:

Intelligence: By this they mean problem definition and re-definition; and the ability to think insightfully. This means 'seeing things in a stream of inputs that most people would not see' (page 609), or 'seeing how to combine disparate pieces of information whose connection is usually non-obvious and usually elusive' (page 609), or 'seeing the non-obvious relevance of old information to a new problem' (page 609).

Problems requiring insightful solutions are usually not obvious in the first place. Most school situations set up problems as obvious. So encouraging children to identify problems in the first place is an important role of provision in education.

Knowledge: Knowledge of a field is essential in order to be creative within it. It is essential that the knowledge is usable for the pupil. Pupils also need to know *why* they are learning particular knowledge, if they are to use it.

Intellectual style: Here they suggest that the creative individual enjoys seeing things in new ways as well as having the ability to do so. They call this having a 'legislative proclivity' in 'mental self-government' (page 611).

Personality: Personality attributes include tolerance for ambiguity, willingness to surmount obstacles and persevere, willingness to grow, willingness to take risks, having the courage of one's convictions and belief in oneself.

Motivation: Intrinsic motivation is, they propose, important. Extrinsic motivation can even undermine creativity. The motivation to excel is also important.

Environmental context: They suggest that the environment (or classroom) needs to spark creative ideas, encourage follow-up of creative ideas, evaluate and reward creative ideas.

Overall pedagogic criteria approaches: Based on qualitative research in primary school classrooms, Woods (1990, 1993, 1995) identified four features at play for both pupils and teachers, where creativity was successfully fostered:

relevance

ownership

control

innovation.

Interpreting these, Jeffrey (1997) suggests that any given situation may offer or demand all or some of these feature. For creativity to be fostered there must be ‘an innovative idea or approach, some ownership and control over the process by the teacher and the pupil, and the event must be relevant to both teacher and pupil’. From a more philosophical perspective, Sisk (1989) suggests that the overall employment by the teacher of novel strategies, techniques and approaches will enhance creative behaviour in the classroom.

Faced with this wide variety of approaches to fostering creativity in the classroom, the advice of Perkins (1999) is perhaps apposite; he suggests that teachers need to adopt a pragmatic approach to enabling pupils to construct their own understanding of knowledge, which further enables them to express creativity. He urges teachers to consider their

repertoire of skills as a 'toolbox' given that no one situation in teaching is ever identical to the next. His advice reminds of the complex artistry involved in teaching, documented by many (Dadds, 1993, 1995, Woods & Jeffrey, 1996, Halliwell, 1993).

Teachers' Role

In-depth studies on creativity of teachers are rare, though its importance is widely accepted in educators nowadays (Randi & Corno, 1997). Classroom is a dynamic, interactive, complex and ever-changing environment. Every moment in teaching, teachers are facing new challenges. They have to solve a lot of problems, which they have not been taught directly in training courses or experienced before. In an old book "Creativity in Teaching", Miel (1961) suggested that teachers might express their creativity in three areas of tasks: integrity in classroom relationships, development of teaching content, inventiveness in the use of time, space and materials.

Rubin (1985) described two types of inventiveness in teaching- in its simple form, invention involves adapting lessons to particular classrooms and students; and, in its complex form, and invention involves devising ways to solve instructional problems. Halliwell (1993)

suggested "inventive flexibility" as a common type of creativity in teaching.

Teachers need to make creative mediation between the given materials (e.g. that in the textbooks) and a particular group of learners on a particular occasion. It is this mediation for which some degrees of inventiveness or flexibility become essential. In all their descriptions (Halliwell, 1993, Miel, 1961, Randi & Corno, 1997, and Rubin, 1985), teaching was considered as a creative process, demanding the flexibility and adaptability of teachers.

Wise teachers can offer a curriculum with plenty of opportunities for creative behaviors. They can make assignments that call for original work, independent learning, self-initiated projects, and experimentation. Using curriculum materials that provide progressive warm-up experiences, procedures that permit one thing to lead to another, and activities that make creative thinking both legitimate and rewarding makes it easier for teachers to provide opportunities for creative learning.

The following are some things caring adults can do to foster and nurture creativity:

- Teach children to appreciate and be pleased with their own creative efforts.
- Be respectful of the unusual questions children ask.
- Be respectful of children's unusual ideas and solutions, for children will see many relationships that their parents and teachers miss.
- Show children that their ideas have value by listening to their ideas and considering them. Encourage children to test their ideas by using them and communicating them to others. We must give them credit for their ideas.
- Provide opportunities and give credit for self-initiated learning. Overly detailed supervision, too much reliance on prescribed curricula, failure to appraise learning resulting from a child's own initiative, and attempts to cover too much material with no opportunity for reflection interfere seriously with such efforts.
- Provide chances for children to learn, think, and discover without threats of immediate evaluation. Constant evaluation, especially during practice and initial learning, makes children afraid to use

creative ways to learn. We must accept their honest errors as part of the creative process.

- Establish creative relationships with children--encouraging creativity in the classroom while providing adequate guidance for the students.

Conditions in the classroom that encourage and enable students and teachers to be creative

- Attitude: commending what is different
- Resources; the unprecedented range available to some (but regrettably not all) learners
- Student diversity
- The provision of assistants from a different educational background
- Allowing a sense of fun (not found in all education systems)
- Teacher's commitment to the method
- Do have the flexibility and freedom to have significant input into module content and assessment, although assessment word limits can constrain what is possible at times.

Teachers can promote Creativity

If creativity is part of a staff development programme they are more likely to be enthusiastic about it. One of the most important points to make is that creativity doesn't just arrive and settle in classrooms and become instantly successful. Teachers have to plan for it to happen. It might be possible for existing teaching styles, schemes of work and medium- and short-term plans to be modified in some way so that there is more potential for creativity.

It might also be the case that teachers will have to modify their approach and promote a range of teaching and learning styles that will allow many more pupils to demonstrate their creativity. This will only work, however, if pupils know their way around the subject that they are being creative about.

When lessons are being observed and teaching quality is being monitored, a creative teacher who encourages pupils to be creative should be able to demonstrate that they:

- encourage open-ended questioning and promote and reward imagination and originality

- increase their use of role-play, hands-on experimentation, problem solving and collaborative group work
 - create conditions for adventurous exploration of ideas as well as those for quiet reflection and concentration
 - use unexpected events where they are appropriate and, where appropriate, put aside what had been planned to go with some new idea without losing sight of the original broad objectives
 - are willing to stand back and let pupils take the lead.
- ❖ Insisting that children do things the "right way." Teaching a child to think that there is just one right way to do things kills the urge to try new ways.
- ❖ Pressuring children to be realistic, to stop imagining. When we label a child's flights of fantasy as "silly," we bring the child down to earth with a thud, causing the inventive urge to curl up and die.
- ❖ Making comparisons with other children. This is a subtle pressure on a child to conform; yet the essence of creativity is freedom to conform or not to conform.

- ❖ *Discouraging children's curiosity. One of the surest indicators of creativity is curiosity; yet we often brush questions aside because we are too busy for "silly" questions. Children's questions deserve respect.

Factors that inhibit students' and teachers' creativity

Clarke(2004) points out the following points as Factors that inhibit students' and teachers' creativity

- Expectations and suggestions that languages are dull, involve rote learning and are for swots
- The fact that effective communication requires accuracy – a skill which is all too often overlooked in other disciplines
- Time constraints
- Supposed lack of resources (money goes into other subject areas)
- Actual lack of resources for capital outlay and maintenance
- Lack of technical expertise
- Thinking too ambitiously or not thinking ambitiously enough
- Teacher's fear of loss of control

- Unhelpful time-tabling (only short stretches available for language classes)
- Fear of failure on the part of teacher and students
- Conservative attitude of students peer pressure (must not enjoy classes)
- Teacher ground down, lack of stamina, too jaded to experiment
- Set syllabus leading to exams
- Teacher fearing disapproval of peers due to their possible reactions (inadequacy, jealousy etc)
- Students can prefer what is perceived in terms of being right/wrong or black/white
- The time required to adjust, when what is expected of students is at variance with what they were expecting.

Parallel to the quest for the development of thinking skills, particularly those pertaining to creativity and enterprise in a world of new challenges, is the call for a paradigm shift in education. Globalisation and rapid technological innovations call for new competencies. Content and technical knowledge easily become

irrelevant in a rapidly changing world. Peterson (1997) noted there has been a revolutionary rather than evolutionary change in the environment of colleges and universities. Ramsden (1998) observed that the challenges included new forms of learning, new technologies for teaching and new requirements for graduate competence. Educators need to ask if the skills imparted are really transferable to the workplace. Teachers would have failed if they use learning processes that do not impact on lifelong learning. Indeed, the challenge is for educators to design new learning environments and curricula that really encourage motivation and independence to equip students with learning skills, thinking and problem solving skills. Employers are looking for attributes such as problem solving skills, adaptability, initiative, creativity, communication skills, technological literacy, real work experience, leadership ability, logic and reasoning, systems thinking and so on. To what extent the education processes in India address these developments.

To churn out the essence of the theories and to put it in a nut shell is a laborious task as the investigator is awestruck with the prolific theoretical literature on creativity. Despite this intriguing and confusing labyrinth of theories and perceptions on creativity the investigator tried

to do maximum justice to include almost all the theoretical aspects of the variable.

An attempt to present and analyse the relevant research conducted on the Creativity on the basis of various approaches and theories described in the first section of this chapter is given following section of this chapter .

REVIEW OF RESEARCH AND RELATED STUDIES

The major purpose of the study, as indicated in the earlier contexts, is to find out the effect of certain strategies of teaching English on nurturing creativity in the higher secondary school students. The preceding part of this chapter has given an overview of the theoretical aspects of the dependent variable selected for the study. The present part of the chapter will showcase an analysis of the research and literature on creativity. This part is divided in to three sections viz.,

- 1. Creativity Research: International perspective**
- 2. Creativity Research in India**
- 3. Review of Research Studies**

CREATIVITY RESEARCH: INTERNATIONAL PERSPECTIVE

This section identifies some key messages from the research and literature related to creativity in an international perspective. .

Approach Taken and Areas Covered

The review has included literature published in books and journals in a range of disciplines and national contexts. There is a large variety of research on creativity. Its range is extremely broad, and as Rhyammer & Brolin (1999) point out, there has been ‘an even broader range of speculation’ about the nature of creativity. Narrowing the literature search to relevant sources was problematic, one reason being the range of related terms used to describe the so-called creative activity.

In education and psychology, the term ‘creativity’ is widely used. The present section of the literature review focuses mainly on texts relating to education, developed in the foundation disciplines of psychology,. They are mainly from North America and Great Britain but also include texts from Australia, Austria, Germany, Japan, and the Macedonian region of former Yugoslavia, Italy, Bulgaria, Norway, Sweden and the Sudan. Whilst aiming to be as comprehensive as possible, any literature search may inevitably miss something out. There

is, for example, some discussion in the literature of differences between Eastern and Western conceptions of creativity, but this has not been included here.

This review has focused on creativity in its generic form rather than within subject domains, although quite a lot has been written about creativity in some subject areas, specifically music, drama, art, information and communication technology, design and technology and mathematics. In addition, a little has been written on leadership/management practices and creativity as well as counseling and creativity, both of which may be relevant to schools.

There is also a great deal of literature concerned with creativity in Engineering and with gifted pupils (although this latter appears to imply a particular view of creativity).

Historical Overview

Theories and ideas about creativity stem from far back in history, unsurprising as Ryhammer & Brolin (1999) point out, given that the development of new ideas and original products is a particularly human characteristic. The notion of 'inspiration' or 'getting an idea' (ibid, page

260), is found in the Greek, Judaic, Christian and Muslim traditions and is founded on the belief that a higher power produces it.

During the Romantic era in Europe, the source of inspiration and its artistic expression was seen as being the human being. During this era, originality, insight, the creative genius and the subjectivity of feeling were highly valued. From the end of the nineteenth century, people began to investigate the question of what fostered creativity.

The first systematic study of creativity was undertaken by Galton (1869). His focus was 'genius' and there followed a hundred or so studies on this theme, defined as achievement acknowledged in the wider public arena. This line of investigation remained prevalent into the 1920s, when the focus in psychology shifted to the investigation of intelligence. Although Binet's work included some investigation of the creative side of intelligence, the major study of creativity in psychology occurred in the 1950s.

Although creativity has a very long history, systematic study of it began at the turn of the last century. The early years of the twentieth century saw a move toward empirical investigation of creativity within the new discipline of psychology.

There were four major traditions in which this took place: the **psychoanalytic** tradition (including Freud's discussion of creativity as the sublimation of drives and Winnicott's work on development which makes creativity central and intrinsic to human nature) the **cognitive** tradition (stemming from Galton's work and including Mednick's exploration of the associative process and Guilford's exploration of divergent production of ideas and products) the **behaviourist** tradition (including Skinner's discussion of chance mutation in the repertoire of behaviours) the **humanistic** tradition (including Rogers, May and Maslow whose discussions focused on the self-realising person acting in harmony with their inner needs and potentialities).

As Ryhammer and Brolin (1999) point out, some theorists were influenced by more than one tradition or line of work. Overall however, the early decades of the twentieth century were influenced more by philosophical speculation than by empirical investigations, because of the methodological approaches of at least two of the four branches described above. These approaches to the study of creativity continue to provide theoretical frames for investigators, although with different emphases at different points in time.

More Recent Directions in Creativity Research

As indicated above, a particularly rich and influential period of research in creativity occurred during the 1950s. Here the focus was on the psychological determinants of individual genius and giftedness. Empirical work formed the methodological basis for much of the investigative work, usually involving large-scale, and positivist studies. Many would argue that this era of research was launched by Guilford's (1950) examination of the limitations of intelligence tests and his investigation of 'divergent thinking'.

There followed a large amount of research which attempted to test and measure creativity, to pin down its characteristics and to foster it through specific teaching approaches.

Lines of Study Stemming from the 1950s

The 1950s research led to three major lines of development: work on personality, cognition and how to stimulate creativity. These lines have drawn on all the four methodological traditions given above. The three major lines of development were as follows.

Personality

This included a focus on prominent creative persons, notably carried out by the Institute of Personality Assessment and Research, at Berkeley (including the work of MacKinnon, 1975, Getzels & Csiksentmihalyi, 1976, and Simonton, 1984). It also studied much narrower personality traits or dispositions which are correlated either positively or negatively with creativity, such as Dogmatism, conformism, narcissism, frustration, resilience, elation, hypomania, and affect tolerance (Shaw & Runco, 1994, and Eisenman, 1997).

From this particular strand of creativity research, the creative person can, it seems, be described as having the following characteristics (summarised by Brolin, 1992):

Strong motivation

Endurance

Intellectual curiosity

Deep commitment

Independence in thought and action

Strong desire for self-realization

Strong sense of self

Strong self-confidence

Openness to impressions from within and without

Attracted to complexity and obscurity

High sensitivity

High capacity for emotional involvement in their investigations.

Although this line of research has provided important information about creative persons, it has been criticized for a range of reasons. The most significant of these is that the studies have been too narrow, focused on eminent and/or productive persons and that consequently the qualities appear to be both contradictory and superficial. In addition, as the criteria for the selection of the individuals and the criteria for defining what is creative vary from study to study, it is difficult to compare one with another. Eysenck, on the other hand, has recently argued that studies of creative individuals have demonstrated surprising agreement over the years (Eysenck, 1997). Dacey & Lennon (2000) suggest that one distinctive set of attitudes stands out in life-long, high level, creative achievement. These are:

Self-control

Sustained hard work

Determination

Perseverance.

Stoycheva (1996) suggested, from her studies of creativity of very able pupils in Bulgarian secondary schools, that highly creative pupils have self-perceptions, values and motivations that differ from those of other pupils, which can create problems for them in seeking peer acceptance.

In addition, she found that teachers tended to devalue independence of judgment and also the involvement of emotion, which are two factors associated in personality studies of creativity with high creative potential. She also found that teachers put a very low value on creativity traits within the school environment and that their perceptions of creativity were centered on its intellectual aspects and problem-solving processes.

Cognition

Various branches of study emerged in the early years of twentieth century. They can be summarized as follows:

Creativity as an aspect of intelligence (for example, Binet & Henri, 1896)

Creativity as a mainly unconscious process (for example, Poincare, 1913, Freud, 1957) creativity as a problem-solving capacity

(for example, Wallas, 1926) creativity as an associative process (for example, Spearman, 1931).

Creativity has also been described in relation to various processes of thought and experience, summarized by Ryhammer & Brodin (1999) and including the following:

Thinking in opposites, analogies and metaphors

Intuition

Inspiration

Intelligence

Various processes of mental representation

Specific perception processes

Problem finding

Problem solving.

Coming to the latter half of the twentieth century, two major lines of creativity investigation under the cognition umbrella have occurred since the 1950s, namely psychometrics and experimental psychodynamics.

Psychometrics: Psychometric approaches to creativity were begun by Guilford, who developed a tool for measuring the extent of divergent thinking, which he later developed into the concept of 'divergent production' (Guilford, 1967). Later variations of Guilford's work include the Torrance

Tests of creative thinking (1966, 1974), which have permeated school contexts, particularly in the United States where tests have been used to assess pupils' creative thinking.

This approach was influenced heavily by Mooney's (1963) 'four elements' view of creativity, which defined it as encompassing specific aspects of the environment (place) of creation, the product as an outcome of Creativity, the process of creation and the person doing the creating.

The tests have, however, come under harsh criticism for measuring intelligence-related factors rather than creativity and for being affected too easily by external circumstances. It has also been suggested that the test procedure purely measures 'creativity on request' as opposed to creativity in Daily life. Others, however, have considered that the tests have proved to be useful estimates of the potential for

creative thought (Bachelor & Michael, 1997) and some think that they have a future (Kirschenbaum, 1998, Plucker & Runco, 1998).

Psychodynamics: During the 1970s and 1980s work was undertaken on personality, perception and creativity. These studies focused on specific groups such as architects, students, children and young people, artists and university teachers. They indicate that the creative person has the ability to make alternative views of reality, has good communication between logic and imagination, has the courage to go against convention, has a belief in their own ideas and is emotionally involved in the work of creation (Smith & Carlsson, 1990; Schoon, 1992; Andersson and Rhyammer, 1998).

One of the major developments during the 1980s and 1990s in personal and cognitive research has been the shift of emphasis away from measurable outcomes-based and product-linked approaches such as those developed by Torrance in the 1960s and 1970s, including tests of creative ability (Torrance, 1966, 1974). More recent investigations focus on understanding the creative mind in terms of intelligence (Gardner, 1993) and attempts to explore implicit theories of creativity held by people considered to be representative of certain fields (Sternberg, 1998; Speill & Von Korff, 1998).

Ways to Stimulate Creativity

Since the 1950s there has been a strong concern that education should prioritise the development of creativity. Implicit in this is the assumption that creativity can be so influenced. Since the 1950s, a range of attempts to stimulate creativity have been developed, although there is, as Ryhammer & Brolin (1999) point out, a serious lack of systematic, controlled evaluations of such programmes. It is also the case that the methods and criteria for evaluating these are underpinned by differing theories of creativity. In addition, whether looking at attempts by cognitive psychologists, psychodynamicists, humanists or behaviourists, there is no evidence of transfer into new contexts.

There was also work done in the 1980s which suggested that early family responsibilities and opportunities for independent action encourage creative achievement and that creativity training programmes in schools are more effective when teacher involvement is high (Benjamin, 1984).

Creativity and Social Systems

By contrast with these earlier developments, research into creativity in the 1980s and 1990s became rooted in a social

psychological framework which recognises the important role of social structures in fostering individual creativity (Rhyammar & Brolin, 1999; Jeffrey & Craft, 2000). This has been described as being a fourth, coherent area of study (Jeffrey & Craft, 2000) i.e, creativity and social systems.

Some significant theories have been put forward in which creativity is seen from a systems perspective (Cziksentmihalyi, 1998; Sternberg, 1998, Sternberg & Lubart, 1991a, 1991b, 1995), where various elements of the overall social and cognitive context are seen as highly relevant to the activity of creating. Three major studies were undertaken - one in Europe (Ekvall, 1991, 1996) and two in the USA (Amabile, 1988; and Isaksen, 1995) - which explored the organisational climates which serve to stimulate creativity. The results from these three programmes have converged at several major points, suggesting that, in a creative climate, the participants in the organisation:

Feel challenged by their goals, operations and tasks

Feel able to take initiatives and to find relevant information

Feel able to interact with others

Feel that new ideas are met with support and encouragement

Feel able to put forward new ideas and views

Experience much debate within a prestige-free and open environment

Feel uncertainty is tolerated and thus risk-taking is encouraged.

In addition, Amabile's (1988) model suggests that individual creativity may be affected by even very minor aspects of the immediate social environment. For example, creativity may be impeded where rewards are determined in advance, where there is undue time pressure, over-supervision, competition or where choices are restricted in terms of approach or working materials, or where evaluation is expected. The role of the context or subject domain has been increasingly emphasized since the early 1990s.

In addition, 1970s debates on creativity within philosophy regarded creativity as moving away from product outcomes and being connected with imaginativeness (Elliott, 1971). During the 1980s a new line was developed, born of social psychology and systems theory, where environmental conditions were taken into account. Within these four lines of development, (personality, cognition, stimulating creativity and social theories) there were specific foci such as the person who creates, the creative process, environmental factors, and the outcome (a

fourfold set of foci, originally proposed by Mooney in 1963 as indicated above).

During the 1990s, due to the development of the approach from social psychology, research into creativity became more comprehensive, integrating these specific foci. Research began to focus more on the creativity of ordinary people within aspects of education. At the same time the methodology for investigating creativity in education also shifted, within a general trend, from positivist, large-scale studies aiming to measure creativity, toward ethnographic, qualitative research focusing on the actual site of operations and practice, as well as philosophical discussions around the nature of creativity.

In education in the United Kingdom, for example, Beetlestone (1999) focused on creativity in the early years' classroom, Woods (1995) and Woods & Jeffrey (1996) explored teacher creativity, and Craft (1996) looked at how to nourish the creative teacher. Beetlestone documents practical strategies for fostering creativity within the early years curriculum, using examples from a large variety of early years contexts. Woods & Jeffrey work through in-depth case studies to document ways in which a small group of teachers operate creatively in the face of a wider context which arguably suppresses the creativity of

the teaching profession. Craft explores in depth the perspectives of eighteen educators involved in a holistic postgraduate course specifically designed to nurture their own creativity. There are, of course, some overlaps in these periods. For example, from the applied education context, Fryer (1996) undertook a large-scale survey of teachers' attitudes towards creativity in their daily professional work.

Creativity Research in India

In spite of the fact that a great deal of philosophical and theoretical attention is being paid to art and creativity, as Raina (1990) points out, research in the subject has been receiving serious attention only very recently. Research is relatively new, and much remains to be accomplished. What seems to be lacking in much of the work, with some notable exceptions, is preciseness, clarity and maturity of judgment (Raina, 1975). Raina's (1989) trend report, based primarily on doctoral theses and projects, provides further evidence about the present state of the art.

Earlier surveys (Buch, 1974; 1979; 1986) did not carry any trend report on creativity. However, there are some trend reports which make mention of studies in this area. The ICSSR Survey of Research in

Psychology (1980) has three chapters in which very small sections on creativity are included. Studies from this publication have also been considered while developing the present trend report.

The first research study in the area of creativity submitted for a formal degree of the University of Calcutta was done by Manas Raychaudhuri (1963). This clinically-oriented investigation attempted to lay bare the differential psychologic, social-environmental and developmental variables that characterize creative talent in music. It is, therefore, not correct to say as Menon and Ojha (1987) have done in the Third Survey of Research in Education (1978-83) that the first evidences of research in creativity have been mainly in the form of test construction (p. 308). Since Raychaudhuri's work, the volume of research in the area of creativity has shown a gradual upward trend. Gupta (1974) surveyed the field in India and found 76 studies at various stages some finished and a part of the literature, some in progress, with the ongoing work reported in research journals. His analysis showed that the majority of research had been done in the area of personality as related to creativity, while other important areas remained to be investigated. A subsequent survey (Raina, 1975) reveals that, one year later, a total of 133 studies in this area were done by Indian researchers

and by foreign authors using Indian subjects for their study. A recent analysis (Bhaskara, 1987) of the 24 studies abstracted in the two previous Surveys of Research in Education indicated that the 24 studies could be classified as, (i) test construction and related researches-9, (ii) co relational studies and related researches- 13, (iii) intervention studies of fostering creativity-2

The last decade has seen a sharp increase in the volume of research on creativity and creative thinking with a major emphasis on-constructing the tests of creativity and correlational studies of creativity with self concept, personality, etc. Unfortunately there has been little research on the general problem of nurturing and promoting creative thinking, especially in the classroom setting. (Raina 1989)

However, it seems that researchers have not been prolific and much has not yet been accomplished in terms of quality and quantity when compared to international contributions. The following table presented by Raina (1989) shows the number of PhD theses completed on creativity related studies in Indian universities.

TABLE - 1
**Number of Theses Completed in
Different University Departments in India**

| Department | Number of Studies |
|-------------------|--------------------------|
| Education | 90 |
| Psychology | 46 |
| Total | 136 |

Of the 136 Ph.D. theses, 90 have been completed in Departments of Education and 46 in Departments of Psychology. One plausible reason for this phenomenon is that education has been considered a potent instrument for development of creativity and, therefore, has received greater attention from the Departments of Education. Another is that the development of instruments to measure various psychological aspects has, by and large, been the interest of Departments of Education and measurement of creativity is no exception. The classification of doctoral researches on creativity in major fields by Raina (1989) is given below.

TABLE - 2

The Classification of Doctoral Research in Major Fields

| Major fields | Number | % of Studies |
|--|---------------|---------------------|
| Theoretical/Philosophical | 1 | 0.73 |
| Identification and Measurement of Creativity | 15 | 11.02 |
| Intelligence, Achievement and Creativity | 13 | 9.55 |
| Personality Correlates of Creativity | 68 | 50.00 |
| Socio-cultural Factors and Creativity | 23 | 16.91 |
| Nurturance of Creativity | 16 | 11.76 |

The distribution of studies indicates that the trend established earlier in surveys by Raina (1975) still persists. Fifty per cent of the studies are devoted to just one area while there are many areas which have not attracted much attention.

Groups studied by creativity researchers as given by Raina (1989) is given below

TABLE- 3

Groups Studied by Creativity Researchers

| Groups | Number of studies |
|------------------------|--------------------------|
| Middle school children | 17 |
| Secondary school | 87 |
| Higher secondary | 3 |
| Poly technique | 1 |
| Graduate students | 17 |
| Post graduate students | 2 |
| Professional groups | 12 |

Interestingly, most of the studies have used secondary students as their subjects. Very few studies employed higher secondary school students as the sample for the study (Raina 1989).

Research on Nurturing Creativity

The art and science of nurturing creativity in the individual person is in its initial stages and much has not been accomplished (Raina 1989). One can cite numerous studies in the professional literature on the effects of various training programmes which have attempted to increase productive performance under different environmental conditions of children, adolescents and adults.

A comprehensive summary of the results of 142 studies that have used Torrance's Tests of Creative Thinking as a criterion measure was reported by Torrance (1972). The paper classified ways of teaching children to think creatively as: training programmes emphasizing the Osborn-Parnes Problem Solving Procedures or a modification of it; other disciplined approaches such as training in general semantics, creativity research and the like; complex programmes involving packages of materials such as the Purdue Creativity Programmes, the Covington, Crutchfield and Davis Productive Thinking Programmes and the Myers and Torrance Ideabooks; using creative arts as vehicles for teaching and practising creative thinking; curricular and administrative arrangements designed to create favourable conditions for learning and practising creative thinking; changes in teacher-classroom variables, indirect and direct control of classroom climate, and the like; providing testing conditions designed to facilitate higher levels of creative functioning or more valid and reliable test performance.

Torrance, on the basis of this comprehensive review, concluded that most successful approaches seem to be those that involve both cognitive and emotional functioning, provide adequate structure and motivation, and give opportunities for involvement, practice and

interaction with teachers and other students. Motivating and facilitating conditions certainly make a difference in creative functioning but differences seem greatest and most practicable when deliberate teaching is involved.

Analysis of the doctoral theses in this area indicates that relatively little research has been done in India on nurturing creativity through various procedures. Is this because promoting students' creative thinking and problem-solving abilities has not been considered a viable educational goal? To consider the problem of nurturing creativity in greater detail, however, and to illustrate new research opportunities in this field, a model of creative learning will be helpful. Unfortunately there is practically none at present.

Researchers have studied the effect of teaching strategies, instructional materials, creativity training programmes, and stimulating environments on the development of creativity. Most of these studies have made use of samples of middle- and high-school children with one study using pre-schoolers. Most of the samples came from urban areas, but some made use of rural samples as well. The experimental designs used were of different types. In most of cases, the techniques employed

have resulted in significant improvements in creativity as measured by creativity tests. This was bound to happen.

One notices an absence of an eclectic approach for nurturing creative behaviour by incorporating and synthesizing as much as possible from the growing literature on creativity (Raina 1989). There are many issues within this area which remain unexplored. The 16 studies classified in this area provide hardly any firm basis for determining the effectiveness of a procedure(s). The complexities involved in creativity development would indicate that there is no single direct approach and that one method or technique may profit one person but not another. Studies abstracted in this area have not made use of many procedures available for stimulating creativity (Van Gundy, 1982; Stein 1974, 1975).

Review of Research Studies

There are a large number of studies conducted in the field of creativity in the past all over the world. The present review only attempts to include studies by researchers in the field of creativity during 1980s and 1990s in India.

Many attempts have been made by a large number of investigators to study the relationship of creativity with other variables of which Intelligence, Personality and Achievement motivation appear to be most common. Only a few researchers attempted investigation in to the nurturing of creativity. Investigation showing relations of Socio Familial Variables with Creativity, Sex difference in creativity, Creativity and Personality, Creativity and intelligence and Nurturing Creativity are included in the review below.

The related studies reviewed are presented as follows.

Relation of Socio –Familial Variables with Creativity

There are a number of educationists who support the view that environmental factors are of supreme importance to creativity. But in a study conducted by Chaddha and Sen (1981) found that relationship between verbal creativity and socio economic status is not significant.

Farilal (1982) in a study on the effect of birth order on creative thinking among adolescence showed that the first borns scored higher on the creativity variables as compared to their counter parts of birth orders.

Hare (1982) in a study, Creativity in Small Groups, reported that certain cultural and social system mechanisms facilitate the creative shift on the group level.

Asha (1983) in a study on the creativity of children of working mothers reported a significant relationship between creativity of the children and maternal employment.

Study by Jarial and Sansanwall (1984) found that socio -economic status has a significant effect on verbal creativity but not on non-verbal creativity.

Sumangala (1986) studied the socio -familial factor structure of high and low creative secondary pupils and found that high and low creative secondary pupils will have distinct social -familial factors and hence the factor structures will also be different.

Desai (1987) conducted an investigation into the Creative Thinking Ability of Students of Higher Secondary of Gujarat State in the Context of some Psycho-socio Factors; the findings were that :There was no difference in creative thinking ability of urban and rural higher secondary students. 2. There were no sex differences with regard to creative thinking ability of higher secondary students. 3. There was no difference between the means of science and common stream students. 4. There was no significant difference between the means of high SES and low SES students. 5. The mean difference between two groups,

namely, the high anxiety and low anxiety group, was highly significant and was in favour of the low anxiety group.

Pal and Gosh (1982), Ajitha (1984) Freeman and Joan(1985) Ahmed (1986),Ahmed(1987), Rao (1988) and Ajitha Kumari (1999) studied the various socio Familial variables. Studies reviewed stress the importance of home environment in developing creativity of the children.

Sex Differences in Creativity

Sex is a widely studied demographic variable in relation to creativity. The trend is not in favour of a particular sex group, for there are equal number of finding showing superiority of both boys and girls, along with the studies showing no difference between boys and girls in creativity.

Chadda and Ghose (1985) found that females are more creative than males on all the components of verbal creativity

Pillai (1988) reports that boys score significantly higher than girls in creativity. The study was conducted on a sample of 220 pupils studying in standard IX from 8 schools of Calicut and Malappuram districts of Kerala.

Superiority of girls in creativity (verbal and non-verbal) has been reported by Singh (1981). His study was on a sample of 200 boys and girls students of Standard IX, from six secondary schools of Indore City.

Geitika Dutta(1982) conducted a study on sex difference in creativity among the tribes of Meghalaya. The study found that there is no difference in Verbal creativity among boys and girls, the nonverbal creative thinking of the girls are higher than the boys.

Kumari *et al.* (1986) conducted a study on creativity among tribal children in relation to their sex and SES . It was proved that girls are better in their verbal creativity. They also found that, boys are superior to girls in non-verbal creativity.

Acharralu and Yasodhara (1984) studied sex difference in the creativity of pre school children and found that statistically significant difference does not exist in the creativity of pre schoolchildren.

Passi (1982) after reviewing a number of studies conducted in India in this area reports that sex acts as a correlate of creativity but with the present state of affairs, it is not possible to conclude which particular sex is superior to other in creativity and its components.

Creativity and Personality

A number of studies have been conducted on the field of personality and creativity to explore their interrelationship.

Krishnan (1980) investigated the relationship between creativity and rigidity. Wallach and Kogan's test for creative abilities and test of behavioral rigidity are used. The results revealed that high creative subjects would be less rigid than those with low creative ability.

Varma (1981) studied the humour differences among creative and non-creative high school students and found that creative students were more humorous in comparison to that of non-creative students.

Rastogi and Nathawat (1982) has found that emotionally secure adolescents have high creativity levels as compared to their emotionally insecure counter parts.

Creativity and Intelligence

In the beginning, researchers were keen to explore the relationship of Creativity with intelligence based on a hypothesis of having linear relations. On the contrary, results obtained in those studies have mostly been of negative nature with a few partly positive.

Minhas (1981) analysed psychometric and projective indices of creativity along with those of intelligence and personality. The result revealed that creativity is relatively independent of the purely intellectual component of human cognitive make up. He concluded that projective indices of creativity seem relatively independent of indices of intelligence and psychometric measures of creativity. The only exception is Rorschach which shows affinity with verbal indices of creativity.

Jarial and Sharma (1980) studied the effect of intelligence on personality along with their interaction upon the fluency, flexibility, originality and total creativity. The results showed a significant effect of intelligence upon the fluency, originality and total creativity of students. Introverts and extroverts differed among themselves on originality, interaction effects of intelligence and personality upon creativity and its components could not reach the level of significance.

Reddy and Reddy's (1983) study revealed that the total creativity score and mental ability were found to be significantly correlated in the case of "impossible test". But the correlation was insignificant in the high ability sub groups.

Kovae and Thomas (1987) studied the relationship between creativity and intelligence at Pre School stage .Results indicate that by four years of age manifestations of divergent thinking and creativity were identifiable. The relationship between creativity and intelligence were fairly differentiated in subjects.

Nurturing Creativity

Upadhay (1981) made an experimental study of the effect of stimulating environment on change in creative ability of young children. The main findings of the study were (a) the stimulating environment did in fact significantly increase the creativity scores of the experimental group on all test items and in all three dimensions of creativity (b) the factors of home environment considered did not significantly affect creativity at the age (c) the social and intellectual behaviour of children was significantly correlated with creativity.

Talegaonkar (1984) developed Teaching Strategies to Encourage Students to Solve Problems in Science Creativity and found that though there was no significant increase in the ability of lateral thinking as per the results of the post test, the students responded well during the conduct of the experiment.

Vora and Gira (1984) investigated into the impact of Divergent Thinking Programme in Mathematics on Creative Levels of the Children of Classes VII and VIII and found that: The creativity increased as a result of treatment of the Divergent Thinking Programme in Mathematics (DTPM) with and without feedback at both grades. 2. The Divergent Thinking Programme in Mathematics was equally effective in both groups of boys and girls. 3. The experimental group proved superior in the component of creativity namely, fluency and originality after taking the DTPM than the other group. 4. There was a significant increase in the scores of the first group of students who were given feedback on the component of fluency of creativity. 5. There was no significant graded difference in creativity scores measured on post test. 6. There was no significant difference between the means of both sexes even after taking the DTPM.

Ryar Michael (1988) investigated the Programme for Developing Creative Thinking Ability in the Students of the Age Group between 10+ and 12+ and it was found that: The experimental groups gained by the CTA programme more than the control group which did not receive any treatment. 2. The adjusted means of the two experimental groups did not differ from each other whereas the mean of the control group

was found significantly lower than the means of the experimental groups.

Singh (1985) studied the effect of a Specially Designed Teaching Strategy and Some Socio-psychological Factors on Creativity among Middle School Children and reported that: The specially designed teaching strategy had a significant effect on creativity. 2. The specially designed teaching strategy had a significant effect on different dimensions of creativity.

Sharma (1986) investigated the performance of High School Students of Low, Average and High Creativity as a Function of the Instructional Media and Learning Tasks in Physics and found that for all dimensions of verbal and nonverbal creativity including totals, the effect of media was found independent of the levels of creativity.

Nandanpawar (1986) conducted an experimental study on developing Linguistic Creativity among the students. The sample for the study consisted of ninth class students offering Marathi as mother-tongue. It was found that the experimental group scored significantly higher than the control group in (i) language proficiency, (ii) overall creativity, and (iii) all the abilities involved in linguistic creativity.

Patel (1987) investigated into the effectiveness of the Purdue Creative Thinking Programme on the Creative Abilities of Elementary School Children, and the study yielded the following results: 1. The main effect of training given to the experimental group was significant for creativity and its two component measures, viz., fluency and originality. 2. The research confirmed the effectiveness of creative thinking training in the Indian setting. In spite of big classes, rigid classroom control, memorization and respect for teachers in comparison with American classes, the gain in creative thinking ability was noteworthy

Kalmae, Magda and Zsoka (1987) conducted a study with an experimental and control group of IC matched pairs of pre school children (aged 5.4- 6.4 Years) in a residential nursery school. The goals were to determine (a) whether it was possible to eliminate the disadvantage in creativity development by simple training techniques and (b) which creativity factors are most sensitive to fostering efforts (i.e. which ones could be easily improved). Creativity thinking was measured by a pre school adaptation of the Torrance tests of Creative thinking. Experimental subjects took part in training sessions 3 times/week for 3 months, control group subjects attended additional nursery school programmes. Experimental subjects scored significantly

better on creativity post-test scores compared to control group subjects, specially on fluency, flexibility and originality.

Patel (1988) developed a Brainstorming Technique Programme and studied its effects on Creativity of the Secondary School Children .The major findings were: 1. the students of the experimental group did better on a creativity test after the treatment than the students of the control group. The student of the experimental group having high IQ gained more by BSTP than those of the control group

Baer M John (1988) investigated the effectiveness of a Creativity training programme, using 2 matched 8th grade classes of 12-13year old high ability students. Students spent 3days and 2 nights at an outdoor school learning to use a model of creative problem solving. There was no treatment for the control group. Prior to the training both groups were tested and 6 months after the training they were retested. Results indicates that on every sub test the experimental group outperformed the control group significantly indicating that after 6 months the skills of creative problem solving had been retained.

Amin (1988) studied the Effectiveness of Creative Thinking Programmes on the Creativity Level of the School Children in relation

to the Programme Correlates and found that: 1. The main effect of the treatment-the training of creativity by the creative thinking programme-was significant for creativity and its component measures: fluency and originality. 2. The main effects of the two factors, time duration and group discussion, were found significant on creativity and fluency thinking ability. Thus, when the programmes were utilized for as long a period as 12 weeks, enhancement of creativity seemed to be superior, irrespective of discussion and programme instructors. 3. After the completion of every creative thinking programme, group discussion seemed to be worthwhile in terms of ideas produced. 4. The main effect of programme instructor was not significant

Passi and Martis (1993) experimented the training of Synectics Model on Scientific creativity of graduate students and found a significant effect on the creativity sample selected.

Gunter Krampen (1996) presented the results of five experimental studies on the effects of systematic-relaxation exercises on divergent as well as convergent performance. Subjects were 40 elementary school children, 120 college students, and 52 elderly. In Experiments 1, 2, 4, and 5, subjects were assigned at random to either an experimental group (participating in a short systematic-relaxation exercise without pre-

experience or exercising autogenic training which subjects had learned at least 6 months before) or to a control group (with unspecific relaxation instructions). In Experiment 3, subjects with against without experience of autogenic training were matched for age, gender, years of study, and creativity pretest scores. Before and after systematic against unsystematic relaxation, subjects were tested for divergent performances (word fluency, associational fluency, expressional fluency, and ideational fluency) and convergent performances (short-term memory, concentration, and general intelligence). Results of all experiments consistently show significant improvements of divergent and - to a lesser extent - convergent performances in the experimental groups after systematic-relaxation exercises. These short-term effects of systematic-relaxation exercises are discussed with respect to characteristics and problems of divergent problem solving processes in individuals and groups.

Ismail (1998) conducted a study to find out the effect of Synectics Model of teaching on the creativity level of the high school students and found that creativity can be nurtured in the students with the employment of Synectics Model of teaching.

Amin (1998) studied the effect of creativity thinking programs on

the creativity level of the children and found significant effect for creativity and its component measures.

Tegano and Deborah (1990) studied the relationship between tolerance of ambiguity, playfulness and creativity for 50 child care workers (age 20-55 years). Results show that tolerance of ambiguity and playfulness *correlated* significantly with creativity.

Beretta Sherley and Privette (1990) investigated the immediate influence of flexible and highly structured programme on the creative thinking of 8—11 year old students. Students who participated in the flexible play experiences showed significantly greater creative thinking than students participating in the highly structured play experiences.

Jampole and Ellen (1991) studied the effects of imagery training on the creative writing of academically gifted elementary students. Results indicate that training in using imagery can enhance aspects of creativity.

Sutton, Smith and Brian (1992) studied the role of toys in the investigation of playful creativity. Results show that toys play a significant role in the child's imaginative life.

Mohanty, Banamali and Hejmadi (1992) investigated the effects

of 20 days of differentiated cognitive training on intellectual and creative thinking abilities of young children. 40 pre-school children (aged 4-5 years) were divided into 4 groups. 1 control and 3 experimental. Experimental groups 1-3 received 3 types of training regarding the names and uses of their various body parts. The types of training were (1) Verbal training (2) Verbal and movement training or (3) Verbal, movement and vocalization of sounds (i.e., music and dance). All students completed the Dear A -Child test from the McCarthy scales of Children's Abilities and the Torrance tests of Creative thinking prior to and after intervention training or no training. Intervention Cognitive training facilitated the intelligence and creative thinking scores of the children, this effect was greatest in the group receiving training through music and dance.

Coney *et al.* (1995), evaluated Mednick's theory of the creative thinking process, an associative priming paradigm was used to measure latencies to lexical decisions primed by associations of low, medium, or high strength with 20 high-creative and 20 low-creative high school students. Mednick's theory that creative individuals show a flatter associative hierarchy than less creative individuals was not supported.

Meador, (1999) compared 107 kindergarten children who either were or were not in a gifted program and received or did not receive special training in synectics (a strategy to facilitate creative thinking) found significant improvement in creativity scores for experimental but not control groups but not more for gifted than for non gifted children.

Results of an 18-year longitudinal study conducted by Milgram and Hong (1993) of 48 Israeli high school students who were seniors at the study's start suggest that measures of creative thinking and creative leisure activities were more important than school-oriented predictors of intelligence and school grades in predicting creative attainments in adults.

Ajitha Kumari (1999) conducted a study to identify some correlates of creativity of pre-schoolers and to find out the effect of providing appropriate environment for fostering creativity by incorporating the elements of the correlates identified earlier in the environment and found that:1 a certain level of intelligence is required for a child to be creative.2.the study supported that the physico-motor characteristics are not associated with the development of creativity.3the stimulating environment given for nurturing the

correlates of creativity identified has enhanced the creativity level of pre school children irrespective of their creativity levels and age levels

Giuseppe Tidona (2001) carried out research in a school in Ragusa, Sicily making use of the de Bono CoRT Programme to assess the effects of teaching Thinking Skills to young people. The article describes the process which was used over one scholastic year with 14-year old children and the effects on the experimental group and the control group. Pre- and post-tests were used. The experimental group showed a significant increase in the skills which were assessed by the assigned tests, while the performance of the control group did not improve, even worsened in some respects. The data about the Italian cultural scene add to the many studies on the CoRT lessons' effects, showing what was once considered impossible: improving thinking and creativity in students is obtainable.

Romina Jamieson (2006) reports on the impact on student personal creativity of a longitudinal study that had as its major goal the creation of a unique intervention program for elementary students. The intervention was based on the National Profile and Statement (Curriculum Corporation, 1994a, 1994b) for the curriculum area of technology. The intervention program comprised thematically based

units of work that integrated all eight Australian Key Learning Areas (KLA). A pretest/posttest control group design investigation (Campbell & Stanley, 1963) was undertaken with 580 students from seven schools and 24 class groups that were randomly divided into three treatment groups. One group (10 classes) formed the control group. Another seven classes received the year-long intervention program, while the remaining seven classes received the intervention, but with the added seamless integration of their available classroom computer technologies. The effect of the intervention on the personal creativity characteristics of the students involved in the study was assessed using the *Creativity Checklist*, an instrument that was developed during the study. The results suggest that the purposeful integration of computer technology with the intervention program positively affects the personal creativity characteristics of students.

Lee (2006) conducted a study to examine the impact of nurturing creativity in language arts classrooms based on gender and inclusion in special education clusters for improving seventh grade students' creative products and determining students' perceptions of creativity nurturing. This study utilized a quasi-experimental, pretest-posttest design with two intact samples separated into treatment and control. The treatment

group displayed statistically higher posttest scores compared to the control group after the intervention.

The Investigator during his preliminary investigation into the literature available to him found that astonishingly few attempts are there to find out the methods and techniques to foster creativity in the students.

Conclusion

The investigator does not claim that the survey of studies attempted in this chapter is complete. Though many attempts have been made to know more about the creativity and related variables, very few attempts has been made to investigate the effect of teaching methods on nurturing the creativity. It is hoped that the general trend shown by the reviewed studies can be considered as substantial evidence to consider the significance of the study.

HOW THE STUDY IS DIFFERENT FROM THE EARLIER STUDIES IN THE FIELD

1. The present study is not intended to duplicate the existing studies.

The present study is somewhat unique as it investigates the effect of selected strategies of teaching English on nurturing Creativity of the higher Secondary Students.

2. This study investigates effect of the strategies for developing language skills as the treatment for developing Creativity.
3. The study selected an experimental procedure to enrich the language skills and its effect on the creativity level of the subjects selected for the study.
4. The study used higher secondary students as the sample for the investigation and very few studies had attempted on the selected sample earlier.
5. The study investigates the effect of three selected strategies for language teaching on developing creativity of the sample selected. Viz Strategy for Developing Speaking Skills, Strategy for Developing Vocabulary and the Grammar Translation (the conventional strategy of teaching English).
6. The type of activities selected for each strategy to nurture the creativity was not studied before in the context of language teaching strategies.

The details of the strategies and the experimental procedure are described in the following chapter.

Chapter Three

METHODOLOGY

- * *Variables of the Study*
 - * *Design of the Study*
 - * *Sample for the Study*
 - * *Tools for the Study*
 - * *Procedure of the Study*
 - * *Statistical Technique*
-
-

METHODOLOGY

The main purpose of the present experimental study was to find out the effect of Certain Strategies of Teaching English on Nurturing Creativity in Higher Secondary School Students. The methodology of the investigation is as follows.

VARIABLES OF THE STUDY

DESIGN OF THE STUDY

SAMPLE FOR THE STUDY

TOOLS FOR THE STUDY

PROCEDURE OF THE STUDY

STATISTICAL TECHNIQUE

Each of the above has been described below in detail.

VARIABLES OF THE STUDY

The independent and dependent variables of the study are explained in the following sections.

DEPENDENT VARIABLE

The dependent variable selected for study was Creativity.

INDEPENDENT VARIABLE

The independent variables selected for the study were the instructional strategies:

1. Strategy for Developing Speaking Skills
2. Strategy for Developing Vocabulary
3. Grammar- Translation Method of Teaching English

DESIGN OF THE STUDY

The researcher used the experimental design for the present study as the objective of the study was to find out the effect of certain strategies of teaching English on nurturing creativity in the higher secondary school students.

Experimental design gives the researcher the freedom to deliberately control and manipulate the condition which determines the events in which he is interested. An experiment involves making a change in the value of one variable and observing the effect of that change on another variable called the dependent variable. "Experimental design is the blue print of the procedures that enable the researcher to test hypothesis by reaching valid conclusion about the relationship

between independent and dependent variables”(Best and Kahn,1996 p.146)

The design used in the present study was the Pre test-Post test Equivalent Groups Design. This design is for a research setting wherein the investigator can compare the scores before and after a particular treatment. The sample was randomly selected and was equated on age and school environment.

The design of the study is illustrated as follows.

R O1 X O2

R O3 C O4

R = random assignment of subjects to groups

X = is the application of experimental treatment given to group

C = is the control treatment

In this study the investigator used two experimental groups and two control groups as the investigator was interested to investigate the effect of two communicative language teaching strategies namely the Strategy for Developing Speaking Skills and the Strategy for Developing Vocabulary.

SAMPLE USED FOR THE STUDY

The present study being an experimental one the investigator felt that it would be difficult to conduct the experiment in large sample. So the investigator selected four first year intact classes from the same Higher Secondary school (Nochat Higher Secondary school) of Kozhikode district of Kerala state, where the investigator had worked as a teacher of English. Two classes were selected from the Science stream and two classes were selected from the Humanities stream. This was done for the convenience of random selection of the sample and to minimize the effect of other intervening variables. The subjects were randomly assigned for Experimental and Control groups for both the streams. This was done with the co-operation of the principal to assure the validity and reliability of the experiment to the maximum possible extent in a natural setting.

The size of the sample: Though each class consisted of 55 students each, the final sample selected for the study was confined to 40 students each from four classes out of which 18 were boys and 22 were girls, i.e., a total of 160 students were used as the sample for two Experimental groups and two control groups in Science and Humanities groups.

TABLE - 4

Details of the Sample Used for the Study

| Stream | Treatment Groups | Boys | Girls | Total |
|------------|----------------------|------|-------|-------|
| Science | Experimental group 1 | 18 | 22 | 40 |
| | Control Group 1 | 18 | 22 | 40 |
| Humanities | Experimental group 2 | 18 | 22 | 40 |
| | Control Group | 18 | 22 | 40 |

Total 160

TOOLS FOR THE STUDY

As stated earlier the major objective of the study was to find out the effect of certain strategies of teaching English on nurturing creativity in the higher secondary school students. To study this, the investigator made use of the following tool to measure the dependent variable. The following tool was used to test the creativity scores of the sample

1. Divergent Production Ability Test (K.N. Sharma, 1987)

Divergent production is “open system thinking”. It was originally developed by KN Sharma (1987). This is a test measures creative abilities or divergent production abilities. Originally in Hindi, the battery of divergent productions abilities contains six tests and later the English version of the test was developed by Shylaja (1997). The Six

tests in the test battery measures the eight ~~the~~ factors associated with creativity.

TABLE - 5

Divergent Production Abilities and their Test names

| Divergent Production Ability | Name of the Test |
|-------------------------------------|-------------------------|
| Word fluency | Word production |
| Ideational fluency | Uses of things |
| Associational fluency | Similarities |
| Expressional fluency | Sentence construction |
| Spontaneous flexibility | Uses test |
| Adaptive flexibility | Titles |
| Originality | Titles |
| Elaboration | Solutions /completion |

From table 5 given above it is clear that, broadly speaking there are only four abilities: Fluency, Flexibility, Originality and Elaboration. However, each sub test ability is measured separately in the present battery, two test can measure two abilities each through a psychometric variation. For example, second test of uses of things can measure ideational fluency as well as spontaneous flexibility, and the Title test can measure adaptive flexibility as well as originality. Therefore only

six tests are required to measure eight abilities. The battery can be used on children, adolescents and adults.

Word Production Test : It contains five items indicating the test to write more and more words starting or ending or both with given letter, or using a particular letter in English language. The item one and four require to write words starting with 'P' and 'O' respectively. The item 3 requires to write words ending with the letter 'E'. The item 5 requires the use of letter 'Q' anywhere in the word. Short instructions are given which are sufficient to write as to what is asked. Spaces have been provided after each item to write the responses. Use of such items to measure creativity was first used by Thurstone. The wrong words are deleted and the total words are counted which indicates the word fluency score.

Uses of Things Test: The test contains five items in English in the form of names of common things. The subject is required to write more and more and diverse uses of things. Spaces have been provided after each item to write the responses in phrases and short sentences. Such items have been used in many foreign tests of creativity. Instructions are written overleaf as to what the subject has to do. The total number of appropriate responses to all five questions gives the 'Ideational Fluency

score'. The number of classes or train of thought to all the five items shall give the 'Spontaneous Flexibility' score. For example , if one writes responses to the word 'wood' as (1) to make chair (2) to make table (3) to make cot (4) to sell (5) to burn , the first 3 responses shall be scored as 1 since they all indicate one train of thought. i.e, to make furniture, whereas the fourth and fifth responses shall also get one score each since they are of different ideas. Thus, for the above example responses, the Ideational Fluency score shall be 5 while the Spontaneous Flexibility score shall be only three.

Similarities test: The test contains six words in English .The names of things and qualities to which the subject is required to write synonyms or related words as many as he can. Such items are used in many foreign tests. As we are interested more on positive relations rather than negative, only synonyms are used.

The instructions with examples are written clearly in English. The total number of appropriate response words to all the items indicate Associational fluency score.

Sentence Construction Test: The test contains five items in English. In item number 1,2,3 and 5 there are four letters placed at a little distance

and the fourth item had five letters. The subject is asked to write as many sentences as he can using those very letters. Spaces have been provided for writing the sentence in each item. Clear instructions with examples are given. The total number of appropriate responses shall indicate the Expressional Fluency score.

Titles Test : The test contains three short stories of three or four lines each. The subject is required to give different titles as he can to each story. The instruction to write are given and the space is provided for writing titles for the story. Two factors can be scored from the title responses. Adaptive Flexibility and Originality. Irrelevant title, if any should be ignored .Since all the titles may be different, being of different train of thoughts their total number will indicate Adaptive Flexibility score. If some titles appear to be very similar all of them must be scored only once. For scoring originality, the unusualness of responses to be found out. Less the number of occurrence of a response more the weight it gets. Responses that occur more than 95% times are called common or usual responses and do not get score. If in a group of 100 subjects one response was given by a subject only once, it will get the weight of 5 score; and if a title response was given by 5 subjects out of a group of 100 subjects, it will get only one score. Thus inverted weightage

originality score can be calculated by the test user separately for separate types of groups. Since originality can vary from group to group according to the experiences of the subjects of the groups this suggestion is made.

The researcher then pooled the responses and started identifying its frequencies and then the originality scores calculated as suggested.

Elaboration test : It contains three items in English. The first two gives some common problems and the third gives an incomplete short story. The subject is asked to suggest more and more solutions to the two problems and to complete the story as long as he can. The instructions are given. The total number of relevant solutions suggested for the first two items are counted. The number of ideas given in the completed part ,whether they are in the form of phrases or sentences should also be added to the scores of the first two items . The total number of the three shall be the Elaboration score.

Divergent production ability/creativity measure is the sum total of fluency ,flexibility, originality and elaboration. The raw scores are to be converted into standard scores to get the total score because of the greater variation in the score of different tests and the incomparability of

their domains (Sharma, 1987). Shylaja (1997) developed percentile norms for each of the test as well as for the total battery.

Reliability of the test - The Test Re test Reliability of the test are as follows.

TABLE - 6
Details of the Test -Re test Reliability of the Test

| Name of the test | Reliability |
|-------------------------|--------------------|
| Word Production | 0.67 |
| Uses of Things | 0.80 |
| Similarities | 0.68 |
| Sentence Construction | 0.84 |
| Titles | 0.85 |
| Elaboration | 0.82 |

Shylaja (1997) has established the Test Re- test reliability for the whole battery using 36 students which yielded the following.

TABLE - 7
The Details of the Test Re test Reliability of the Test for the whole Battery

| Name of the test | Reliability |
|-------------------------|--------------------|
| Word Production | 0.79** |
| Uses of Things | 0.42** |
| Similarities | 0.44** |
| Sentence Construction | 0.25 |
| Titles | 0.56** |
| Elaboration | 0.40* |
| Total | 0.56** |

(** Significant at 0.01 level * Significant at 0.05 level)

Validity- To ensure the content validity, the consistent and deliberate effort has been made to use the test stimuli , test tasks , instruction and scoring procedures based upon the test, theory and researches available on creativity/divergent production ability or creative thinking . The following table no.8 shows the correlation of the battery with Baker Mehdi's Test of Creative Thinking (Verbal).

TABLE - 8

**Details of Correlation of the Battery
with Baker Mehdi's Test of Creative Thinking (Verbal)**

| Divergent Production Ability | Baker Mehdi's Creative Thinking Test | | | | | |
|------------------------------|--------------------------------------|-------------|-------------|-------------|--------|------------|
| | Fluency | Flexibility | Originality | Elaboration | | Creativity |
| | | | | Nonverbal | Verbal | |
| Word Fluency | 0.48 | 0.32 | 0.36 | 0.31 | 0.40 | 0.50 |
| Ideational Fluency | 0.58 | 0.40 | 0.40 | 0.42 | 0.52 | 0.43 |
| Associational Fluency | 0.66 | 0.51 | 0.38 | 0.36 | 0.48 | 0.33 |
| Expressional Fluency | 0.63 | 0.36 | 0.51 | 0.38 | 0.47 | 0.37 |
| Spontaneous Flexibility | 0.47 | 0.58 | 0.40 | 0.43 | 0.50 | 0.39 |
| Adaptive Flexibility | 0.43 | 0.60 | 0.42 | 0.42 | 0.45 | 0.48 |
| Originality | 0.31 | 0.35 | 0.58 | 0.33 | 0.32 | 0.43 |
| Elaboration | 0.46 | 0.35 | 0.32 | 0.41 | 0.50 | 0.44 |
| Creativity | 0.44 | 0.48 | 0.39 | 0.40 | 0.44 | 0.48 |

Shylaja (1997) has established the following validity measures using the Hindi version of the Original Divergent Ability Test of Sharma. Shylaja (1997) used Rank Difference Correlation Method which yielded the following. She used 33 students of class IX and conducted both English and Hindi version.

TABLE - 9
Details of the Validity
Measures of the Divergent Production Ability test

| Name of the test | Validity |
|-------------------------|-----------------|
| Word production | 0.71** |
| Uses of things | 0.37* |
| Similarities | 0.56** |
| Sentence construction | 0.48** |
| Titles | 0.50** |
| Elaboration | 0.48** |

(** Significant at 0.01 level * Significant at 0.05 level)

The test manual and description of the test in detail shows that the test is not only reliable but also a valid tool to measure the creativity of the Higher Secondary Students. A sample copy of the test is provided as Appendix 1.

2. Strategies for Experimentation

Seven lessons which consisted of five prose and two poems from the “Singing Rivers and Speaking Stones”, the prescribed English textbook for class XI according to the syllabus of State Council of Educational Research and Training (SCERT), government of Kerala, were taught during the period of treatment.

TABLE - 10

**The Details of Lessons
Taught Using the Experimental Strategies**

| Sl No | Name of the lesson | Nature of the passage |
|-------|-----------------------------------|-----------------------|
| 1 | Pret in the house | prose |
| 2 | I prepare to go to Coimbatore | Prose |
| 3 | My muscle froze | Prose |
| 4 | No Witchcraft for sale | Prose |
| 5 | The night the policemen came | Prose |
| 6 | The listeners by Walter dela Mare | poem |
| 7 | Who are you by Sundara Ramaswamy | poem |

The investigator used different strategies for teaching English to Science and Humanities streams .The Science class (Experimental group 1) was taught using the Strategy for Developing Speaking Skills as most of the other subjects in the science stream are taught with minimum of speaking in the target language. For example maths, physics, chemistry and Biology .So the investigator found and felt it necessary to use the Strategy for Developing Speaking Skills to the Science group students. Whereas most of the humanities subjects are taught with a maximum of speaking in the target language the investigator found and felt it appropriate to use the Strategy for Developing Vocabulary to the

Humanities students as it would enable them to enrich their vocabulary in the target language. So a detailed description of the treatment given to both the Experimental groups is given in the following section.

Strategy for Developing Speaking Skills

Students often think that the ability to speak a language is the product of language learning, but speaking is also a crucial part of the language learning process. Effective instructors teach students speaking strategies -- using minimal responses, recognizing scripts, and using language to talk about language -- which they can use to help themselves expand their knowledge of the language and their confidence in using it. These instructors help students learn to speak so that the students can use speaking to learn.

The strategies employed here are mainly selected and adapted by the investigator mainly from the grammar practice activities given in Five- minute Activities (Penny Ur *et al.*, 1996) and Grammar practice Activities (Penny Ur, 1996)

1. Using minimal responses

Language learners who lack confidence in their ability to participate successfully in oral interaction often listen in silence while

others do the talking. One way to encourage such learners to begin to participate is to help them build up a stock of minimal responses that they can use in different types of exchanges. Often idiomatic phrases that conversation participants use to indicate understanding, agreement, doubt, and other responses to what another speaker is saying. Having a stock of such responses enables a learner to focus on what the other participant is saying, without having to simultaneously plan a response.

2. Recognizing scripts

Some communication situations are associated with a predictable set of spoken exchanges -- a script. Greetings, apologies, compliments, invitations, and other functions that are influenced by social and cultural norms often follow patterns or scripts. So do the transactional exchanges involved in activities such as obtaining information and making a purchase. In these scripts, the relationship between a speaker's turn and the one that follows it can often be anticipated.

Instructors can help students develop speaking ability by making them aware of the scripts for different situations so that they can predict what they will hear and what they will need to say in response. Through

interactive activities, instructors can give students practice in managing and varying the language that different scripts contain.

3. Using language to talk about language

Language learners are often too embarrassed or shy to say anything when they do not understand another speaker or when they realize that a conversation partner has not understood them. Instructors can help students overcome this reticence by assuring them that misunderstanding and the need for clarification can occur in any type of interaction, whatever the participants' language skill levels. Instructors can also give students strategies and phrases to use for clarification and comprehension check.

By encouraging students to use clarification phrases in class when misunderstanding occurs and by responding positively when they do, instructors can create an authentic practice environment within the classroom itself. As they develop control of various clarification strategies, students will gain confidence in their ability to manage the various communication situations that they may encounter outside the classroom.

There are a lot of activities used for developing speaking skills. For the treatment in the present study the investigator used only selected activities that would develop speaking skills as well as creative thinking abilities.

Activity 1 : Chain Story

This activity is extremely simple. Each student adds a sentence to create a group story. Despite the simplicity it can be really challenging. Students should be in a circle (if this isn't possible make it clear they know who they are going to follow on from) The teacher can begin by saying the first sentence and each student adds the next sentence, without repeating what has come beforehand.

- Good starting words are “Suddenly” or “Yesterday” to force the story into the past tense. It highlights problems students may have with tenses or prepositions for the teacher to focus on in future classes.
- The stories can be developed in any number of ways. Some groups may need the teacher to provide punctuation and decide that the sentence should end and a new one should begin. The great thing about this activity is that all students have to

concentrate and listen carefully to their colleagues to be able to continue the story coherently.

Example:

- Teacher – “Yesterday I saw a strange man”
- Student 1 “He was wearing a yellow hat”
- Student 2. “he was very old”
- Student 3. “ He was very tired”
- Student 4. He had a walking stick in his hand.
- Student 5.It was made of wood.

Activity 2 : Imaginary Anecdote

This is a fun activity to create a group Anecdote . Each student needs a blank sheet of paper and a pen. If possible, sit in a circle shape to play. Each student adds one stage to the story then folds the paper to cover the information and passes the paper to the student on the right. At each stage, before folding and passing to the student on the right, give these instructions.

- Write the name of a man. It can be a famous man or a man everyone in the class knows. (Depending on the group, allow them to put the names of class mates)

- Write the name of a woman. It can be a famous woman or a woman everyone in the class knows. (Depending on the group, allow them to put the names of class mates)
- Write the name of a place where the two people meet.
- When they meet, he says something to her. What does he say?
Students write what he says to her.
- She replies to the man. What does she say?
- What's the consequence of this encounter? What happens?

The end result is a mixed up anecdote that can often be amusing. The teacher reads as an example of how the teacher wants the students to tell the story. Then invite students one by one to unfold their stories and speak out them to the group. Teacher can encourage use of connectors, reported speech, etc.

Activity 3 : Telephone Wires

- A sentence is whispered around the circle of students. The last student to receive the message either says it aloud or writes it on the board. This can be a fun way to introduce a topic and activate schema at the beginning of a class. For example, for a class on food, whisper the question, "What did you have for lunch today?"

Equally, at the end of a class it can be a nice way to revise structures from the lesson.

- A variation of this is to get the students into two lines (team A and B) in front of the board, so the first student in both lines is really near the board and the teams are lined up behind him/her. The teacher whispers a sentence or a question to the two students at the end of the line and they pass it down the line until it reaches the students nearest the board who then have to write the sentence on the board.
- Another variation is to play the game into and out of the students' own language. The teacher whispers the starting sentence in English. The next student translates into their own language and passes it on, the next one translates it back into English and so on until it gets to the end. This can be a fun way to look at the learners' common mistakes which come from mother tongue interference.

Activity 4 : 'Wh' Questions

The teacher reads a sentence from the text and tells the students to ask as many 'Wh' questions as possible connected with the idea given

in the sentence. The students are grouped for this purpose . Each group can frame the questions and they can ask these to the other groups .The other groups should answer in full sentence .

- Allow the students to articulate questions
- Format questions so that they extend students' thinking
- Expect that all students will think toward solutions
- Give appropriate "wait time" for cultivation of student thought
- Involve students in discoveries
- Expect significant questions from all students
- Welcome the divergent questions as many as possible
- Train students in how to ask appropriate questions

Activity 5 : Imaginative Description

The teacher holds up two pictures chosen at random in connection with the theme of the given passage in the text and ask the students to suggest as many possible relationship between them. Teacher encourages highly imaginative as well as seemingly ridiculous ideas.

Activity 6 : Why Why Why

Repeating questions over and over generates as much or as little information as the quantity and type of questions demand. Differentiation between the 2 types of repeatable question gives serial questions, used indefinitely and emptying questions used until the subject concerned is drained.

- Where the question and answers are related, teacher ask why C happened and the answer is related to another event B and so the same question can be reiterated, i.e.
 - WHY did C happen, because B did
 - WHY did B happen, because A did
 - WHY did A happen, because (etc.....)
- Causation,
 - 'WHY?' Encompasses:
 - 'What is the reason for?'
 - 'What is the cause of?'
 - 'What is the consequence of?'
- Membership
 - 'What are the parts of?'

- ‘What is this a part of?’
- ‘What belongs to it?’
- Parts could include sub-categories, or they could belong to a wider system (see Hierarchy diagrams)
- Sequence,
 - ‘What happened before and after C?’ exploration of the timing behind the events
- Frame,
 - ‘What is the context of C?’
 - ‘What is the context of that context?’
 - This idea suggests a multi-layered hierarchy of one event dependant on another

Activity 7 : Scamper

SCAMPER is a strategy that can be used to assist students to generate new or alternative ideas. It is a tool to support creative, divergent thinking. SCAMPER is an acronym for: substitute, combine, adapt, modify/magnify/minify, put to other uses, eliminate, reverse/rearrange.

SCAMPER helps students ask questions that require them to think "beyond the lines" of a text. As such, it helps develop their critical thinking skills and supports them in constructing their own imaginative texts.

The strategy is often best used after students have spent some time studying a text. Explain the purpose of the strategy to the students, encouraging them to open up their minds to a range of creative possibilities.

S: Substitute (a person, place, time or situation)

C: Combine (bring together assorted ideas and situations)

A: Adapt (or adjust to suit a purpose)

How might the story have changed if

M: Modify (for example, by changing the physical size or personality traits of some characters or changing the setting)

P: Put to other uses (for example, put a different slant on the plot)

E: Eliminate a feature of the story

R: Rearrange or reverse the sequence of the story

It is not necessary to use all the steps in SCAMPER. Steps can be selected and combined in a variety of ways to match the teaching intentions.

Activity 8 : Retelling

This is sometimes called Read and Retell. It involves students reading, viewing or hearing a text and then retelling it, using any of the language modes. The approach described here was developed by Brian Cambourne and Hazel Brown, trialed by a state-wide research team of Tasmanian teachers, and endorsed by the Department of Education as a highly recommended strategy for teaching and assessment in the late 1980s.

This strategy concentrates on interpretation of the content and the structure of the particular text. Because it can involve all of the language modes, retelling can be used to teach and to assess a wide range of students' skills and understandings.

Before students are asked to do a retelling, they need to have been immersed in the particular text genre so that they are familiar with its structures and features.

1. The teacher shows the title of a text to students and asks them to predict words/ideas that the title suggests.
2. In small groups, students share their predictions and comment on each other's suggestions.
3. Students are then presented with the text that they hear, read or view.
4. Students are given explicit instructions about what is expected of them when retelling. For example, to retell an explanatory text so that someone else can understand how to program a video recorder.
5. Without referring to the original text, students retell it in the particular language mode that they have been asked to use.
6. In groups, students then share their retellings, comparing additions, omissions, differences in vocabulary and phrasing.
7. Students share some of their discussions, commenting on their appropriateness and similarity to the original text.

The texts that are used for retelling can be written, visual or oral.

Retellings can also be in any of these forms. So, for example, a written

text can be retold in a visual form, orally or as another written text. Teachers can read the text as students follow, using their own copies. Alternatively, teachers can listen while the teacher reads aloud, or read the text silently.

Depending on the purposes for the retelling, a range of things can be evaluated. During the retelling, students' speaking skill increase to a larger extent.

Activity 9 : Six Thinking Hats

Six Thinking Hats is a strategy devised by Edward de Bono which requires students (and teachers), to extend their way of thinking about a topic by wearing a range of different 'thinking' hats:

White hat thinking focuses on the information available and needed.

Black hat thinking examines the difficulties and problems associated with a topic.

Yellow hat thinking focuses on benefits and values.

Red hat thinking looks at a topic from the point of view of emotions, feelings and hunches.

Green hat thinking requires imaginative, creative and lateral thinking about a topic.

Blue hat thinking focuses on reflection, meta-cognition (thinking about the thinking that is required), and the need to manage the thinking process.

The colours help students to visualise six separate modes of thinking and to convey something of the meaning of that thinking, for example, red as pertaining to matters of the heart, white as neutral and objective.

Students learn to reflect on their thinking and to recognise that different thinking is required in different learning situations.

Consider an issue or topic which the teacher would like his students to explore, for example, the influence of a particular cartoon show in a channel on a young audience. Explain what thinking is required for each of the hats. Have students working in small groups to ask themselves a range of questions:

White hat - what are the facts about that particular channel?

Black hat - what are some of the drawbacks of that channel?

Yellow hat - what do people gain from viewing that channel?

Red hat - how does viewing that channel make us feel?

Green hat - what could be changed to make the channel more popular

or more appealing?

Blue hat - how do the mass media in general affect our youth culture?

Groups report back to the whole class about the types of ideas generated using the six hats. The teacher points to the breadth of views and thoughts, and explains that this is as a result of making one apply a range of different types of 'thinking'.

Six Hat Thinking can be applied to many situations in which brainstorming, problem solving, creative and lateral thinking are required. This strategy can be a very useful tool in reviewing a range of texts or even creating a character profile.

The above said activities were used along with the normal classroom transactions. The cluster of these activities are termed as the strategies for developing speaking skills. Every teaching period in the experimental group made use of at least one of these activities in the class.

Strategy for Developing Vocabulary

The humanistic view of education strongly proposes that learners must always be involved in the teaching learning process, right from when the 'facilitator' plans the teaching to when s/he tests them.

Involving the learners gives them the much needed boost and propels them to take responsibility for their learning. What the investigator advocated was that something as dull and difficult as teaching vocabulary can become extremely interesting and rewarding if learners teach learners.

Activities for Vocabulary Building

1. Add a Word

One student begins a sentence by saying only one word. A second student must say a word which continues the sentence. A third must continue, and so on, until someone says a word that does not fit syntactically or grammatically. If the sentence comes to a logical end without error, the next student may say "period" and begin a new sentence with a new word.

The teacher may suggest a topic to get things started.

Example:

Teacher: The topic is 'pets'.

First student: "My . . ."

Second student: ". . . dog"

Third student: ". . . has . . ."

Fourth student: ". . . brown . . ."

Fifth student: "... spots. . ."

2. *Guessing the Word from a Drawing*

Ask one student to be in front of the class. Give him/her a word that can not be seen by other students.

He/she will draw (on the blackboard) a picture expressing the concept of the word. The rest of the class have to guess the word.

3. *Think Fast!*

A game for revision (review). It also works well for the last five minutes of class . The teacher prepares a list of items for revision, e.g., word fields, grammar, facts. In class he/she explains the procedure. Three to five volunteers leave the classroom and wait till their turn has come. The teacher appoints a student to take the exact time and another to take down a tick for every correct answer. No repetitions! (Set up or negotiate rules on pronunciation.) Then the first player is called in.

Teacher: You have 20 second to name as many things as come to your mind.

Your topic: Parts of the body / sights / plays by William Shakespeare / the places in a town / traffic signs / weekend shopping-list / etc.

Ready, steady, go

Allow more time (30 or 40 seconds) for longer answers: What have you done so far today? / What did you do last weekend? / School rules: What do students have to do? What are they not allowed to do? / etc.

4. *Four-Letter-Words*

This game has nothing to do with offensive words. It is amazing to see how many different words can be generated from a single word!

1.-The teacher writes a four-letter word

For example:

The teacher writes on the board: TIME

2. Students will take turns generating words from the first one. The idea is to change only one letter but generate a meaningful word.

TEACHER - TIME

STUDENT1 - DIME

3. Any letter can be changed. Only one at a time, but not on the same place consecutively. Example:

TEACHER TIME

STUDENT1 DIME

STUDENT2 - LIME (Wrong you should change any other letter but not on the same place consecutively).

TEACHER.- TIME

STUDENT1 - DIME

STUDENT2 - DOME

STUDENT3 - COME

STUDENT4 - CAME

STUDENT5 - CANE

The teacher has to limit the time the students take to write the words (may be 20 seconds). The students score a point for each meaningful word they write. If a student takes too much time he loses his turn. Finally the student who makes more points is the winner.

5. Active Brainstorming around a word

The aims are to not only to generate lists of relevant vocabulary around a theme, but to invigorate the class with a rather noisy and challenging activity.

To begin with, the teacher must select three or four vocabulary subcategories within a theme, for example with a theme of housing/describing rooms, the subcategories might be things found in a bedroom, a living room, and a kitchen; in a sports theme, there might be

team, individual, and non-competitive sports. Students are then paired up and asked to generate ideas together for each subcategory, preferably under a time limit to keep things fast, much as in any brainstorming exercise. Then pairs should be grouped into 2,3,or 4 larger teams to share/compare ideas and lengthen their lists if possible.

Now comes the wild part. The black/whiteboard is divided into sections, one for each sub category, and one student from each group is called up and handed a piece of chalk or a marker of a color assigned to each team. There must be one color per team, eg., the blue team, the yellow team, and so forth. The designated writers for each team are not allowed to bring any paper up with them. Instead, their team members must shout out ideas which can be put under each/any subcategory, including the correct spelling of same. With all teams shouting at the same time, a seemingly out of control, but quite enjoyable atmosphere pervades. The object is to be the team with the most words on the board at the end.

It is best to stop every minute or two and change designated writers so that all can get a chance. Also, depending on how strict the teacher wishes to be, groups which use L1 might have their entries

erased. Finally, the teacher shouts "Stop!", and the scores for each team are tabulated.

This activity will take between 30 and 50 minutes, has been used successfully with groups ranging in age from 16 to 65, and would seem to suit younger learners as well. The only materials required are a rather large board and as many different color pieces of chalk as there are teams.

6. Making Words from Letters in a Long Word

This game is a good activity for learning new words and for reviving some word knowledge and for giving a teacher time to prepare other tasks for students.

The class is to be divided into 2-3- teams. Give each team a dictionary and write on the board a long word. Students should compose different words from the letters of this word. After some time, the teams give their words. The team that has the most correct words wins.

Example:

RETRIBUTION

Return, tribute, iron, notion ,note, tone ,rib ,tube, bruit ,tent ,tribe
,bur, button ,rent, burin, nob ,bite, burr ,run ,route, tire, tore, bent, bet

,bonnet ,rub ,nib, net, nub, bin ,nut, bit, rube, ruin ,rob, rot ,unit, union,
unite ,tier, tie, tin, tint ,tone, toe, brute ,burn, brunt, butt, butter, riot ,tot,
tenet ,tenure, terrier, retro, bone, boot, born, bout, totter, tote, tour,
bore...

7. *What's the Word?*

On an index card, write a word (example: school) and write 4 or 5 key words that cannot be used to describe that particular word. (Example: teachers, blackboards, students, desks, tests) Any other words can be used except for the words written on the index card. A sample card would look like this:

SCHOOL

teachers

blackboards

students

desks

tests

8. *One word Description of the picture*

To help the students expand and add variety to their vocabulary the teacher brings different picture, posters and presents one for the

entire class and ask the class how they feel about it and ask the class to name as many words as they can to describe the picture as a whole or different things in the picture. The class is asked to form different groups of 8 students each and the pictures and posters are given to them. Now each group should describe the picture they got and they have to write a story or paragraph using those words.

9. Mind map

Identify the main problem or topic that the teacher want to explore and write it, in a short phrase, in the middle of a blank piece of paper.

The larger the page, the more mapping one can do, although it is surprising how much information one can get onto a standard letter/A4 page.

Problems are often expressed as verb-noun phrases, such as 'buying a car' or 'opening a shop'. One can also draw a picture to represent the problem, if you like. Use color to brighten it up.

Primary branches

Identify the words to describe first-level main branches from the main subject. These are important, as they will guide the thinking at

lower levels. If they are too specific, they will constrain thinking. If they are just logical, they will encourage logical (but maybe not creative) thinking.

Buzan (1991) calls these Basic Ordering Ideas (BOIs), in recognition of their importance.

The words for primary (and sub) branches can be single words or short phrases, though always be aware of the impact they will have. For note-taking, look for key words that summarize important points. For creativity, look for stimulating and ambiguous words that will trigger other ideas. Make sure words can be read clearly, for example by using capital letters or careful printing (cursive scribbles may slow down later review).

Sub-branches

Continue adding sub-branches from the primary branches and from other sub-branches to build up the mind-map.

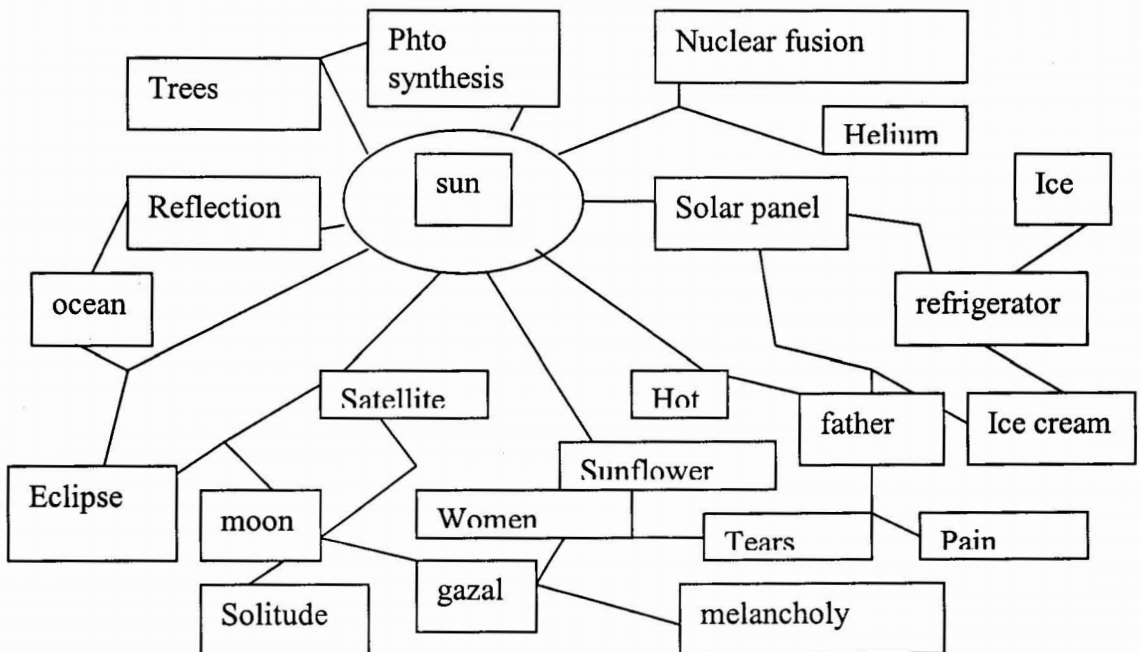
Student can do as many sub-branches as he/she likes, but by the time the teacher gets to around the third level of depth, teacher will probably find that he/she is filling up the page very quickly.

When sub-topics seem to want to be in more than one sub-branch, then student can either write it down more than once or connect them with a cross-link

Students can also write the words separately and connect them with lines (rather than writing the words on the lines themselves). This means doing experiments, which is, of course, allowed and encouraged - especially in a creative environment.

The brain works by association and thinks in pictures and wholes. Mind-maps aligns with this tendency by showing associative links and being visible as a whole.

For example



The two strategies of teaching employed for investigation are summarised in table 11

Table - 11

**The Summary of Strategies
of Teaching Employed for Experimentation**

| Experimental group 1 (Science) | Experimental group 2 (Humanities) |
|---|--|
| Strategy for Developing Speaking Skills (Activities) | Strategy for Developing Vocabulary (Activities) |
| Activity 1. Chain story | 1.Add a Word |
| Activity 2. Imaginary Anecdote | 2. Guessing the Word from a Drawing |
| Activity 3 .Telephone Wires | 3. Think Fast! |
| Activity 4. Why Questions | 4. Four letter words |
| Activity 5.Imaginative description | 5. Active Brainstorming around a word |
| Activity 6. Why Why Why | 6. Making Words from Letters in a Long Word |
| Activity 7.Scamper | 7. What's the Word? |
| Activity 8.Retelling | 8.One word Description of the picture |
| Activity 9.Six Thinking Hats | 9.Mind map |

PROCEDURE OF THE STUDY

Before starting the experiment the four classes were tested for their creativity using the Divergent Production Ability Test on the third day of their arrival to the School. On the basis of the pre- test scores the samples were randomly assigned for each stream into Experimental and Control groups. The Experimental group in the Science and Humanities

classes were taught by the investigator using the strategies for teaching speaking skills and strategies for developing vocabulary for the Science and Humanities streams respectively for two months. The control groups in both the streams were taught using the traditional Grammar translation method by the respective teachers. Immediately after the completion of the treatment for two months all the four classes were measured for their Creativity scores using the same tool as post test and retention test.

Management of the Experimentation

The experimental group 1 (Science) was taught the selected lessons employing the Strategies for Developing the Speaking skills and the Experimental group 2 (Humanities) was taught the same lessons employing the Strategies for Developing Vocabulary for 60 periods of 50 minutes duration each.

All the 9 activities in both the Experimental Teaching Strategies were used appropriately according to the theme and the contents of the lessons .The investigator ensured all the nine activities of each strategy were used at least three times in the experimental groups.

Table 12 shows the details activities employed by the investigator while teaching the two Experimental groups.

TABLE - 12

**Details of Activities Employed
for the Treatment with Regard to Teaching
Various Lessons during the period of Experimentation**

| Sl. No | Name of the lesson | Nature of the passage | Experimental group 1 (Science) | Experimental group 2 (Humanities) |
|--------|-----------------------------------|-----------------------|--|---|
| | | | Strategy for Developing Speaking Skills (Activities) | Strategy for Developing Vocabulary (Activities) |
| 1 | Prêt in the house | prose | 1, 2, 8, 9 | 9,3,2,8 |
| 2 | I Prepare to go to Coimbatore | Prose | 1, 6, 7,4 | 3, 2, 4,5 |
| 3 | My Muscle Froze | Prose | 3, 2, 4,5 | 6, 9 ,5,7 |
| 4 | No Witchcraft for Sale | Prose | 6, 9 ,5,7 | 6, 7 ,4,9 |
| 5 | The Night the Policemen Came | Prose | 1, 5 ,3,4 | 1, 5 ,3,4 |
| 6 | The listeners by Walter Dela Mare | poem | 6, 7 ,4,9 | 1, 6, 7,4 |
| 7 | Who Are You by Sundara Ramaswamy | poem | 9,3,2,8 | 1, 2, 8, 9 |

Teaching for the Control Groups

The control groups were taught the same lessons during the same period using the Grammar translation method of teaching.

Grammar-Translation Method regards language as a system of rules and exceptions. The pupils have to learn the system and the words by heart. Speaking is not as important as is using the correct grammar structure. The texts used are not connected to real life situations; the

method mostly uses short texts from literature. In the teaching process the dominant actor is the Teacher being something of a dictator rather than a partner. GTM also was called Classical Method since it was first used in the teaching of the classical languages, Latin and Greek. Earlier in this century, this method was used for the purpose of helping students read and appreciate foreign language literature. It was also hoped that, through the study of the grammar of the target language students would become more familiar with grammar of their native language and that this familiarity would help them speak and write their native language better.

1. Classes are taught in the mother tongue, with little active use of the target language.
2. Much vocabulary is taught in the form of lists of isolated words.
3. Long, elaborate explanations of the intricacies of grammar are given.
4. Grammar provides the rules for putting words together, and instruction often focuses on the form and inflection of words.
5. Little attention is paid to the content of texts, which are treated as exercises in grammatical analysis.

6. Often the only drills are exercises in translating disconnected sentences from the target language into the mother tongue.
7. Little or no attention is given to pronunciation.

Data Collection after Experimentation:

At the end of the experimentation period the same tool “Divergent Production Ability Test ” was administered to the whole samples in both Experimental and Control groups. The pre test and post test scores were compared to see the difference in the creativity of the sample

After a gap of three months the retention test was conducted on the sample in the Experimental groups in both science and Humanities using the same tool. The post test- and retention test scores were compared to see the difference in the Creativity of the sample in both the experimental and control groups.

Scoring : Scoring of response sheets were done according to the manual of the tool. After scoring the scores were tabulated separately for the Pre tests, Post tests and Retention tests for the two Experimental and Control groups separately . The analysis of the obtained data was done using the suggested techniques.

STATISTICAL TECHNIQUES USED FOR THE STUDY

The Statistical technique used for analyzing the data was the test of significance of the difference between both the uncorrelated and correlated means. SPSS (statistical Package for Social Sciences Software) was used for analysis of the obtained data. The findings and conclusions of the study are presented in the following chapter.

Chapter Four

ANALYSIS AND INTERPRETATIONS

- * *Comparison of the Pre-tests for ensuring equivalence*
 - * *Comparison for Identifying the effect of the Experiment*
 - * *Comparison for identifying the Retention Effect*
 - * *Tenability of Hypothesis*
 - * *Conclusion*
-
-

ANALYSIS AND INTERPRETATIONS

The principal purpose of the present study was to find out the Effect of Certain Strategies of Teaching of English on Nurturing Creativity in Higher Secondary School Students when it is compared with Conventional Grammar translation Method of Teaching.

Before and after employing the treatment, data on creativity was collected from all the groups. After a gap of three months creativity was again tested to see for its retention in the experimental groups. The Pre test and Post test scores were compared to see the difference in the Creativity of the subjects resulting from the experiment and its retention as the difference between post test and retention test scores also was explored into. The results of the analysis are given below.

I. COMPARISON OF PRE TEST FOR ENSURING THE EQUIVALENCE

At the beginning of the treatment, “The Divergent Production Ability Test” was administered to the Experimental Groups and Control groups in both Science and Humanities streams .The Pre test scores of Creativity of Experimental groups and corresponding Control groups were compared to ensure the equivalence in terms of Creativity.

1. Comparison between the Pre test Scores of Creativity of the Experimental group 1 and the Control Group 1(Science)

Table 13 gives the data and result of the above analysis.

TABLE - 13

**Data and Result of the Test of Significance
of Difference between the Mean Scores of Creativity in
the Pre test of Experimental (1) and Control (1) Groups : (Science)**

| Pre tests | Mean | SD | N | Critical ratio |
|----------------------|--------|-------|----|----------------|
| Control group 1 | 122.90 | 13.31 | 40 | 0.14 |
| Experimental Group 1 | 122.52 | 11.58 | 40 | |

The analysis by the test of significance of difference in the two means yielded a critical ratio of 0.14. This is much less than the t value at 0.01 level of significance which is 2.70. This shows that there exists no significant difference between the mean Pre test scores of Experimental (1) and Control (1) groups: (Science). This reveals that there was no difference existing between Creativity scores of the Experimental and the Control Groups for Science class before the treatment. That means the essential pre condition required for the experiment is ensured.

2. Comparison between the Pre test scores of Creativity of the Experimental (2) Group and Control Group (2) : (Humanities)

Table 14 gives the data and result of the above analysis

TABLE - 14

**Data and Result of the Test of Significance
of Difference between the Mean Scores of Creativity in the
Pre test of Experimental (2) and Control (2) Groups : (Humanities)**

| Pre tests | Mean | SD | N | Critical ratio |
|-----------------|--------|-------|----|----------------|
| Control group 2 | 122.40 | 17.53 | 40 | 0.96 |
| Experimental 2 | 119.32 | 10.29 | 40 | |

The analysis by the test of significance of difference in the two means yielded a critical ratio of 0.96. This is much less than the t value at 0.01 level of significance which is 2.70. This shows that there exists no significant difference between the mean Pre test scores of Creativity of Experimental(2) and Control (2) groups :(Humanities). This reveals that there was no significant difference existing between Creativity scores of the Experimental (2) and the Control (2) Groups: (Humanities) before the treatment. That means the essential pre condition required for the experiment is ensured.

Comment:

The Pre experimental analysis, of the data collected using the “Divergent Production Ability Test ” as pre test , by the Test of Significance of Difference Between the Mean Creativity scores before the treatment showed that no significant difference existed in the pre

test scores of Creativity between the Control and Experimental groups of both Science and Humanities stream selected for the study. This result is enough to substantiate the experimental validity required for the study.

II. COMPARISON FOR IDENTIFYING THE EFFECT OF THE EXPERIMENT

The following comparisons between the Mean scores of Creativity have been made to find out the Effect of the Experiment. This is presented in two sections. The first section will present the comparisons of Means of the Creativity scores of the Experimental (1) and Control (1) Groups: Science stream, to find out the effect of the Strategy for Developing Speaking Skills On Nurturing Creativity and the second section will present the comparisons of means of the Creativity scores of the Experimental (2) and Control (2) Groups: Humanities stream, to find out the effect of the strategy for developing Vocabulary on Nurturing Creativity.

1. Comparison between Post test scores of Creativity of the Experimental Group (1) and Control Group (1) : (Science)

Table 15 gives the data and results of the above analysis

TABLE - 15

**Data and Result of the
Test of Significance of Difference
between the Mean Post test Scores of Creativity
of Experimental Group (1) and Control Group(1) : (Science)**

| Post tests | Mean | SD | N | Critical ratio |
|----------------------|--------|-------|----|----------------|
| Control group 1 | 123.00 | 13.05 | 40 | -14.14* |
| Experimental group 1 | 162.13 | 11.67 | 40 | |

* Shows Significance at 0.01 level

The analysis by test of significance of difference in means yielded a critical ratio of 14.14 for the mean difference between Post test scores of Creativity for Experimental group 1 and Control group 1 (Science). This is much greater than the t value at 0.01 level of significance which is 2.70. This indicates that the mean Post test scores of Creativity of Experimental group 1 and Control group 1 (Science) show significant difference. This reveals that a true difference exists between Creativity scores of Experimental group 1 and Control group (Science) after the experimentation. That means the treatment given to the Experimental group (Science) has a significant effect upon the Creativity level of the sample selected.

2. Comparison between the Mean Gain Scores of Creativity of the Experimental Group (1) and Control Group (1) : (Science)

Table 16 gives the data and result of the above analysis

TABLE - 16

Data and Result of the Test of Significance of Difference between the Mean Gain Scores of Creativity for Experimental (1) and Control (1) Groups : (Science)

| Gain Scores | Mean | SD | N | Critical ratio |
|-----------------------------|-------|-------|----|----------------|
| Control (1) Gain score | 0.10 | 1.48 | 40 | 17.44* |
| Experimental (1) Gain score | 39.60 | 14.24 | 40 | |

* Shows Significance at 0.01 level

The analysis by the test of significance yielded a critical ratio of 17.44 for the mean difference between the gain scores of Experimental (I) and Control (1) groups. This is much greater than the t value at 0.01 level of significance which is 2.70. This indicates that the mean gain scores of creativity of Experimental (1) and Control (1) shows significant difference. This reveals that a true difference exists between Creativity scores of the Experimental (1) and the Control (1). That means the treatment given to the experimental group (1) has a significant effect upon the creativity level of the sample selected.

Comments:

The analysis by the test of significance of difference between the mean Creativity scores of the Experimental (1) and Control Group (1) of Science stream clearly shows that there is a significant increase in the mean Creativity scores of the Experimental group (1) when compared to that of the Control Group (1) as a result of the Strategy for Developing Speaking skills employed by the investigator in the Experimental group for a period of two months.

The study shows that there is a significant positive effect for the Strategy of Developing Speaking skills on nurturing Creativity in the higher secondary school students.

3. Comparison between the mean Pre test scores and Post test scores of Creativity of the Experimental Group (1) : (Science)

Table 17 gives the data and results of the above analysis

TABLE - 17

Data and Result of the Test of Significance of Difference between the Mean Pre test Scores and the Post test Scores of Creativity of Experimental Group (1) : (Science)

| Experimental group 1 (paired) | Mean | SD | N | r | Critical ratio |
|-------------------------------|--------|-------|----|------|----------------|
| Pre test | 122.52 | 11.56 | 40 | 0.25 | -17.58* |
| Post test | 162.13 | 11.67 | 40 | | |

* Shows Significance at 0.01 level

The analysis by test of significance yielded a critical ratio of 17.58 for the Mean difference between Pre test scores and Post test scores of Creativity of Experimental group (1) (Science). This is much greater than the t value at 0.01 level of significance which is 2.70. This indicates that the mean Pre test scores and Post test scores of Creativity of Experimental group1: Science, show significant difference. This reveals that a true difference exists between Pre test scores and Post test scores of Creativity of Experimental group(1):Science .That means the treatment given to the Experimental group (Science) has a significant effect upon the Creativity level of the sample selected .

4. **Comparison between the Mean Pre test scores and the Post test Scores of Creativity of the Control Group : (Science)**

Table 18 gives the data and results of the above analysis

TABLE - 18

Data and Results of the Test of Significance of Difference between the Mean Pre test Scores and the Post test Score of Creativity of Control Group (1) : (Science)

| Control group1 (paired) | Mean | SD | N | r | Critical ratio |
|-----------------------------|--------|-------|----|------|----------------|
| Pre test | 122.90 | 13.31 | 40 | 0.99 | -0.43 |
| Post test | 123.00 | 13.05 | 40 | | |

The analysis by the test of significance yielded a critical ratio of -0.43 for the mean difference between the Pre test and Post test scores of Control group 1: Science. This is much less than the t value at 0.01 level of significance which is 2.70. This indicates that the mean Pre test scores and Post test scores of Creativity of Control Group1: Science, show no significant difference. This reveals that no significant difference exists between Pre test scores and Post test scores of creativity of Control group(1):Science .That means the treatment given to the Control group(1) :Science, has no significant effect upon the Creativity level of the sample selected .

5. Comparison between the Mean Post test Scores of Creativity of the Experimental Group (2) and Control Group (2) : (Humanities)

Table 19 gives the data and result of the above analysis

TABLE - 19

Data and Result of the Test of Significance of Difference between the Mean Post test Scores of Creativity of Experimental Group (2) and Control Group (2) : (Humanities)

| Post tests | Mean | SD | N | Critical ratio |
|-----------------|--------|-------|----|----------------|
| Control group 2 | 122.85 | 16.83 | 40 | -14.05* |
| Experimental 2 | 167.05 | 10.59 | 40 | |

* Shows Significance at 0.01 level

The analysis by test of significance yielded a critical ratio of -14.05 for the Mean difference between Post test scores Creativity of Experimental group (2) and Control group (2): Humanities. This is much greater than the t value at 0.01 level of significance which is 2.70 . This indicates that the mean Post test scores of Creativity of Experimental group (2) and Control group (2) Humanities: show significant difference. This reveals that a true difference exists between post test scores of Creativity of Experimental group (2) and Control group (2): Humanities. That means the treatment given to the Experimental Group (Humanities) has a significant effect upon the Creativity level of the sample selected.

6. Comparison between the mean Gain scores of Creativity of the Experimental Group (2) and the Control Group (2)

Table 20 gives the data and result of the above analysis

TABLE - 20

Data and Result of the Test of Significance of Difference between the Mean Gain Scores of Creativity for Experimental (2) and Control (2) Groups : (Humanities)

| Gain Scores | M | SD | N | Critical ratio |
|-----------------------------|-------|-------|----|----------------|
| Control (2) Gain Score | 0.45 | 1.84 | 40 | 26.29* |
| Experimental (2) Gain score | 47.72 | 14.24 | 40 | |

* Shows Significance at 0.01 level

The analysis by the test of significance yielded a critical ratio of 26.29 for the mean difference between the Gain scores of Experimental group (2) and Control group (2). This is much greater than the t value at 0.01 level of significance which is 2.70. This indicates that the mean Gain scores of Creativity of Experimental group (2) and Control group (2) shows significant difference. This reveals that a true difference exists between Creativity scores of Experimental group (2) and Control group (2): Humanities. That means the treatment given to the Experimental group (2) has a significant effect upon the creativity level of the sample selected.

Comments:

The analysis by the test of significance of difference between the mean Creativity scores of the Experimental (2) and Control Group (2), i.e., Humanities stream, clearly shows that there is a significant increase in the mean Creativity scores of the Experimental group (2) when compared to that of the Control group (2) as a result of the Strategy for Developing Vocabulary employed by the investigator in the Experimental group (2) for a period of two months.

The study shows that there is a significant positive effect for the Strategy for Developing Vocabulary on nurturing Creativity in the higher secondary school students.

7. Comparison between the Mean Pre test scores and the Post test scores of Creativity of the Experimental Group (2) : (Humanities)

Table 21 gives the data and result of the above analysis

TABLE - 21

Data and Result of the Test of Significance of Difference between the Mean Pre test Scores and the Post test Scores of Creativity of Experimental Group (2) : (Humanities)

| Experimental group 2 (paired) | Mean | SD | N | r | Critical ratio |
|--------------------------------|--------|-------|----|------|----------------|
| Pre test | 119.32 | 10.29 | 40 | 0.42 | -26.89* |
| Post test | 167.05 | 10.59 | 40 | | |

* Shows Significance at 0.01 level

The analysis by the paired test of significance yielded a critical ratio of -26.89 for the mean difference between the Pre test and Post test scores of Experimental Group 2 (Humanities). This is much greater than the t value at 0.01 level of significance which is 2.70. This indicates that the Pre test and Post test scores of Creativity of Experimental group (2) : Humanities, shows significant difference. This reveals that a true difference exists between Pre test and Post test scores of

Creativity of Experimental group (2) : Humanities .That means the treatment given to the Experimental Group (2) :Humanities , has a significant effect upon the Creativity level of the sample selected .

8. Comparison between the Mean Pre test scores and Post test scores of Creativity of the Control Group (2) : (Humanities)

Table 22 gives the data and result of the above analysis

TABLE - 22

Data and Result of the Test of Significance of Difference between the Mean Pre test Scores and Post test scores of Creativity of Control Group (2) : (Humanities)

| Control group 2 (Paired) | Mean | SD | N | r | Critical ratio |
|------------------------------|--------|-------|----|------|-------------------|
| Pre test | 122.40 | 17.53 | 40 | 0.99 | -1.55 |
| Post test | 122.85 | 16.83 | 40 | | |

The analysis by test of significance yielded a critical ratio of -1.55 for the mean difference between the Pre test and Post test scores of Creativity of Control group (2). This is much less than the t value at 0.01 level of significance which is 2.70. This shows that the Pre test and Post test Scores of control (2): Humanities shows no significant difference. This reveals that no true difference exists between Pre test and Post test creativity scores of Control (2) .That means the treatment

given to the control group (2) has no significant effect upon the Creativity level of the sample selected.

III. COMPARISON OF FOR IDENTIFYING THE RETENTION EFFECT

Whether the retention capacity of the experimental treatment used in the study is maintaining the Creativity scores of the Experimental subjects in both the Experimental groups was tested after a gap of three months and it showed the following results.

1. Comparison between the Mean Post test scores and Retention scores of Creativity of the Experimental Group (1): (Science)

Table 23 gives the data and result of the above analysis

TABLE - 23

**Data and Result
of the Test of Significance of Difference
between the Mean Post test Scores and Retention
test Scores of Creativity of Experimental Group (1) : (Science)**

| Experimental group 1 | Mean | SD | N | r | t-value |
|----------------------|--------|-------|----|------|---------|
| Post test | 167.05 | 10.59 | 40 | 0.96 | -1.97 |
| Retention | 168.00 | 10.72 | 40 | | |

The analysis by the test of significance yielded a critical ratio of -1.97 for the mean difference between the Post test and Retention test Scores of Experimental (1): Science. This is much less than the t value

at 0.01 level of significance which is 2.70 .This indicates that the Post test and Retention scores of Creativity of Experimental (1) :Science shows no significant difference. This reveals that no true difference exists between Post test and Retention scores of Creativity of Experimental group (1). That means the treatment given to the Experimental Group (1) has a retaining effect upon the Creativity level of the sample selected.

2. Comparison between the Mean Post test scores and Retention Scores of Creativity of the Experimental Group (2) : (Humanities)

Table 24 gives the data and result of the above analysis

TABLE - 24
Data and Result
of the Test of Significance of Difference
between the Mean Post test Scores and Retention
test Scores of Creativity of Experimental Group (2) : (Humanities)

| Experimental Group 2 | Mean | SD | N | r | t-value |
|----------------------|--------|-------|----|------|---------|
| Post test | 162.13 | 11.67 | 40 | 0.98 | -1.30 |
| Retention test | 162.53 | 11.34 | 40 | | |

The analysis by the test of significance yielded a critical ratio of 1.30 for the mean difference between the Post test and Retention test Scores of Creativity of Experimental group (2) :Humanities .This is

much less than the t value at 0.01 level of significance which is 2.70. This shows that the Post test and Retention scores of Creativity of Experimental group (2): Humanities show no significant difference. This reveals that no true difference exists between Post test and Retention scores of Creativity of Experimental group (2). That means the treatment given to the Experimental group (2) has a retaining effect upon the Creativity level of the sample selected.

Comments:

The analysis by the test of significance of difference between the mean Creativity scores showed there is no significant difference between post test and retention test scores of both Experimental groups (1) and (2). Even after a gap of three months the subjects in both the Experimental groups (Science and Humanities) showed the same mean Creativity scores.

These results revealed that the effect of the Strategies of Teaching employed by the investigator has a long lasting effect on the Creativity of the higher Secondary school students.

TENABILITY OF HYPOTHESIS

The tenability of the hypothesis set for the study was examined in the light of the findings. It showed that the hypothesis set for the study is substantiated.

The findings revealed that the comparison between the Creativity scores in the pre-test and post-test for both the experimental groups showed higher Creativity scores after the treatment period. It shows that as result of the Strategies employed in each experimental group the creativity potential of the higher secondary school students was increased substantially. The study also showed that the increased level of creativity could be retained by the students.

The findings suggest that employing the special Strategies used in the study as treatment for the experimental groups had a positive effect on nurturing creativity of the higher secondary school students. This shows that the hypothesis set for the study is fully substantiated.

CONCLUSION

These findings of the study can be concluded as the following.

1. The special strategy of teaching English employed by the investigator, i.e., the Strategy for Developing Speaking Skills was capable of nurturing the creativity of higher secondary students.

2. The special strategy of teaching English employed by the investigator, i.e., the Strategy for Developing Vocabulary was capable of nurturing the creativity of higher secondary students.

3. Both The strategy for Developing Speaking Skills and The strategy for Developing Vocabulary used by the investigator had a long lasting effect on nurturing creativity of higher secondary school students.

On the basis of the conclusions of the study, it is confirmed that the Strategies for teaching English employed by the investigator are effective for nurturing the Creativity of higher Secondary school students.

Chapter Five

SUMMARY OF FINDINGS, CONCLUSIONS AND SUGGESTIONS

- * *The study in Retrospect*
 - * *Major Findings*
 - * *Discussion of the Results*
 - * *Interpretation of the Results*
 - * *Summary and Conclusions*
 - * *Educational Implications*
 - * *Suggestions for Further Research*
-
-

SUMMARY OF FINDINGS, CONCLUSIONS AND SUGGESTIONS

This chapter summarizes the entire study done. It provides an overall view of the major findings, conclusions, educational, implications and suggestions resulting from this study.

THE STUDY IN RETROSPECT

The study aimed to find out the effect of certain Strategies of Teaching English on nurturing Creativity of higher secondary school students .

Restatement of the problem:

The study as stated in the earlier contexts of the present report, was intended to find out the effect of providing certain Strategies of Teaching English on nurturing Creativity of the higher secondary students .The problem was stated as “EFFECT OF CERTAIN STRATEGIES OF TEACHING ENGLISH ON NURTURING CREATIVITY OF HIGHER SECONDARY SCHOOL STUDENTS”.

Objective of the Study

The principal objective of the present experimental study is, to find out the effect of certain strategies of teaching English on nurturing Creativity of Higher Secondary School students.

Hypothesis

There will be a positive effect for the select strategies of teaching English on nurturing Creativity of the Higher Secondary School students

Methodology

The methodology followed in the present study is presented in the following sections.

a) Design of the Study

Since the present study is an Experimental one, the investigator used the Pre test Post test- Equivalent Groups Design.

b) Variables of the Study

The Independent and Dependent variables of the study are as follows.

1. Dependent Variable

Following is the dependent variable selected for the present study
Creativity

2. Independent Variables

The independent variables selected for the study are:

(1) Certain strategies for teaching English used by the investigator

(A) Strategy for developing speaking skills

(B) Strategy for developing vocabulary

(C) Grammar- Translation Method of Teaching English.

c) Sample for the study

The present Experimental study was conducted on a total sample of 160 first year Higher Secondary School students from four intact classes of 40 students each; from the same school .Of which two classes were treated as Experimental groups and the other two as Control groups. The sample was thus equated on age and other pertinent variables except for the independent variables employed for the treatment.

d) Tool used for the study

The following tool is used to measure Creativity.

- Divergent Production Ability Test (Sharma 1987).

e) Statistical techniques used for the study

The statistical techniques used for analyzing the data was the test of significance of the difference between correlated means and test of significance of difference between uncorrelated means.

f) Procedure in brief

The present study was to find out the effect of certain strategies of teaching English on nurturing creativity of Higher Secondary Students. During the pre-treatment period of the study, the tool for measuring Creativity was administered to both the Control and Experimental Groups.

As a part of the treatment the Control groups were taught selected lessons from the prescribed English text using the Grammar translation method. The two Experimental groups were taught the same lessons using the select strategies of teaching English formulated by the investigator. The first experimental group was taught using the Strategy for Developing Speaking Skills and the second experimental group was taught using the strategy for Developing Vocabulary. The strategies ranged from simple language games to brain storming sessions involving pair work and group work in the classroom. The treatment continued for two months.

After the completion of the treatment in both the groups the tool for measuring Creativity was administered again to both the Control and Experimental Groups as post- test and as retention test.

Finally the pre- test and post-test scores of both groups were analyzed to see if there is any evidence significant enough to prove the effectiveness of the teaching strategies used by the investigator for nurturing the dependent variable selected for the study.

MAJOR FINDINGS

The major findings of the study are summarized below

1. Comparison between Post test scores of Creativity of the Experimental group (1) and Control group (1) : (Science)

The mean Post test scores of Creativity of Experimental group1 and Control group (1) : (Science) show significant difference.

2. Comparison between the Mean Gain Scores of Creativity of the Experimental group (1) and Control group (1) : (Science)

The mean gain scores of creativity of Experimental (1) and Control (1) shows significant difference.

3. Comparison between the mean Pre test scores and Post test scores of Creativity of the Experimental group (1) (Science)

That the mean Pre test scores and Post test scores of Creativity of Experimental group1: Science, show significant difference.

4. Comparison between the Mean Pre test scores and the Post test Scores of Creativity of the Control group (1) : (Science)

The mean Pre test scores and Post test scores of Creativity of Control Group1: Science, show no significant difference.

5. Comparison between the Mean Post test Scores of Creativity of the Experimental group (2) and control group (2) : (Humanities)

The mean Post test scores of Creativity of Experimental group (2) and Control group (2) : Humanities: show significant difference.

6. Comparison between the mean Gain scores of Creativity of the Experimental group (2) and the Control group (2)

The mean Gain scores of Creativity of Experimental group (2) and Control group (2) shows significant difference.

7. Comparison between the Mean Pre test scores and the Post test scores of Creativity of the Experimental group (2) : (Humanities)

The Mean Pre test and Post test scores of Creativity of Experimental group (2) : Humanities, shows significant difference.

8. Comparison between the Mean Pre test scores and Post test scores of Creativity of the Control group (2) : (Humanities)

The Mean Pre test and Post test Scores of control (2): Humanities shows no significant difference.

9. Comparison between the Mean Post test scores and Retention scores of Creativity of the Experimental group 1 (Science).

The Mean Post test and Retention scores of Creativity of Experimental group 1, (Science) : shows no significant difference.

10. Comparison between the Mean Post test scores and Retention Scores of Creativity of the Experimental group 2, (Humanities).

The Mean Post test and Retention scores of Creativity of Experimental group 2, (Humanities) show no significant difference. The above results showed that the strategies of teaching employed by the investigator for experimentation have a long lasting effect on the creativity of the higher secondary school students.

DISCUSSION OF THE RESULTS

The analysis by the test of significance of difference between the mean Creativity scores of the Experimental (1) and Control Group (1) of Science stream clearly shows that there is a significant increase in the mean Creativity scores of the Experimental group (1) when compared to that of the Control Group (1) as a result of the Strategy for Developing Speaking Skills employed by the investigator in the Experimental group for a period of two months.

The study shows that there is a significant positive effect for the Strategy of Developing Speaking skills on nurturing Creativity of higher secondary school students.

The analysis by the test of significance of difference between the mean Creativity scores of the Experimental (2) and Control Group (2), i.e., Humanities stream clearly shows that there is a significant increase in the mean Creativity scores of the Experimental group (2) when compared to that of the Control group (2) as a result of the Strategy for Developing Vocabulary employed by the investigator in the Experimental group (2) for a period of two months.

The study shows that there is a significant positive effect for the Strategy for Developing Vocabulary on nurturing Creativity in the higher secondary school students.

The analysis by the test of significance of difference between the mean Creativity scores showed there is no significant difference between post test and retention test scores of both Experimental groups (1) and (2). Even after a gap of three months the subjects in both the Experimental groups (Science and Humanities) showed the same mean Creativity scores.

These results revealed that the effect of the Strategies of Teaching employed by the investigator has a long lasting effect on the Creativity of the higher Secondary school students.

The present study revealed that the strategies for teaching English used by the investigator, though it was meant to develop the language skills of the students, have a significant effect on nurturing the creativity of the higher secondary school students. The study showed that both the strategies i.e., Strategy for Developing Speaking Skills and Strategy for Developing Vocabulary, have played a significant role in the development of the creativity of the sample selected.

The study also revealed that the strategies of teaching employed by the investigator have a long lasting effect on nurturing creativity of the higher secondary school students.

INTERPRETATION OF THE RESULTS

The study revealed that the Strategies employed by the investigator have a lasting effect on the nurturing Creativity of the higher secondary school students. The experimental procedure selected for the study was found to enhance the Creativity of the higher secondary school students.

These findings are in support with theoretical assumptions (discussed in chapter II). Similar to the findings of the present study earlier researchers also had obtained results about the creativity being nurtured by providing suitable strategies of teaching. The studies by Upadhay (1981); Talegaonkar (1984); Vora and Gira (1984); Singh(1985); Sharma (1986); Nandanpawar (1986); Patel (1987); Kalmae, Magda and Zsoka (1987); Amin (1988); Patel (1988); Ryar Michael (1988); Baer and John (1988); Tegano and Deborah (1990); Mohanty, Banamali and Hejmadi (1992); Passi and Martis (1993); Meador (1994); Coney *et al* (1995); Gunter Krampen (1996); Amin (1998); Ajitha Kumari (1999); Giuseppe Tidona (2001); Romina Jamieson (2006); and Lee (2006)

SUMMARY AND CONCLUSIONS

There is a positive effect for the strategies of teaching employed by the investigator on nurturing creativity of the higher secondary school students.

The Strategy for Developing Speaking Skills used by the investigator in the first Experimental Group had a significant effect on nurturing creativity of higher secondary school students.

The strategy for Developing Vocabulary used by the investigator in the second Experimental Group had a significant effect on nurturing creativity of higher secondary school students.

Both The strategy for Developing Speaking Skills and The Strategy for Developing Vocabulary used by the investigator had a long lasting effect on nurturing creativity of higher secondary school students.

These findings of the study can be concluded and summarized as the following.

1. The special strategy of teaching English employed by the investigator, i.e., the Strategy for Developing Speaking Skills was capable of nurturing the creativity of higher secondary students.
2. The special strategy of teaching English employed by the investigator, i.e., the Strategy for Developing Vocabulary was capable of nurturing the creativity of higher secondary students.
3. Both The strategy for Developing Speaking Skills and The Strategy for Developing Vocabulary used by the investigator had a long lasting effect on Nurturing creativity of higher secondary school students.

EDUCATIONAL IMPLICATIONS

The results of this experimental study provides a number of implications in the educational field. The outcome of this study is useful to teachers, students, curriculum makers and also to policy makers.

The Creative Age logic requires something very different - self-expression, flexibility, and individual initiative. Most people understand that advances in technology and communication allow for complex coordination without having to be in the same building, factory or office.

The need to balance the teaching of knowledge and the development of thinking skills to process that knowledge is an educational imperative in order to prepare students to adapt to societal demands and changes. Creativity and creative teaching are becoming part of the educational psyche but the concept of creativity within some kind of context should be set. The government is beginning to recognize that young people need to develop the creative skills that will be necessary in the workplace of the future. Fast-moving technology and the increasing demands for flexibility and imagination mean that all the pupils need to be able to pose questions such as ‘what if ...?’, ‘why?’ and ‘why not?’

Based on the results obtained in the present study the investigator suggests the desirability of introducing certain changes in the existing methods of language teaching and educational practice in general higher secondary schools.

1. It is more than likely that, as students of higher secondary start their careers, Creative teaching practices should be used that will help prepare them to solve problems, think independently and work flexibly.
2. A key finding has been that pupils leap ahead in their learning when they have a chance to think and be creative. They thrive on questioning, on connecting their learning with their experiences and building on what they already know. They are motivated when they see possibilities in an activity and have time to explore, to play with ideas, solve problems and work with others.

Therefore, selection of teaching strategies used to teach the thinking skills are necessary to motivate and activate the students to face challenges and tasks ahead. In a thinking classroom, teaching strategies used to promote thinking and independent learning include using

cooperative learning, role play, thinking maps, Socratic dialogue, higher order questioning and problem posing.

3. The inclusion of the language teaching strategies investigated by the researcher in the curriculum will also provide more flexibility for teachers to tailor what they teach to meet the needs of their pupils and therefore encourage more creative approaches.
4. There should be less emphasis on what is being taught and more on how.
5. The study has the following specific implication implications set out for teachers:
 - ❖ Allow for both broad and narrowly focused experimental activity, but always specify and explain the purpose of such activity. Those involved have to feel prepared and secure enough to be willing to take risks and make mistakes in a non-threatening atmosphere that challenges but reassures.
 - ❖ Encourage an appropriate attitude towards imaginative activity - a sense of excitement, respect, hope and wonder at the potential for transformative power that is involved, accompanied by a sense of delayed skepticism and distance.

- ❖ Assist in the understanding of the room that has to be given to generative thought, free from immediate criticism by the learner or others before ideas are subject to rigorous critical evaluation and further development.
- ❖ Encourage self expression that is oriented towards a given task.
- ❖ Convey an appreciation of the phases in creative activity and the importance of time - including the ways in which time away from a problem may facilitate its solution.
- ❖ Assist in developing an awareness of the differing contexts in which ideas may occur and of the roles of intuition, unconscious mental processes and non-directed thought in creative thinking.
- ❖ Encourage and stimulate learners in periods of free play with ideas and conjecture about possibilities but complement this with critical evaluation in testing out ideas.
- ❖ Emphasize the use of the imagination, originality, curiosity and questioning, the offer of choice, and the encouragement of the personal attributes that facilitate creativity.
- ❖ Children are to be helped into understanding creative thinking skills processes and should be given the opportunity to practice

those skills alongside the usual curriculum contents in a systematic and effective way.

- ❖ The most powerful way to develop creativity in the students is to be a role model. Children develop creativity not when teacher tell them to, but when they show them.
- ❖ A teacher cannot be a role model for creativity unless she/she thinks and teaches creatively. So teachers should think carefully about their values, goals, and ideas about creativity and show them in their actions.
- ❖ Make questioning a part of the daily classroom exchange. It is more important for students to learn what questions to ask-and how to ask them-than to learn the answers.
- ❖ Help the students evaluate their questions by discouraging the idea that teacher asks questions and they simply answer them.
- ❖ Avoid perpetuating the belief that teacher's role is to teach students the facts. Instead, help the students understand that what matters is their ability to use facts.

- ❖ Help the students learn how to formulate good questions and how to answer questions.
- ❖ Promote creative performance by encouraging students to define and redefine problems and projects.
- ❖ Encourage creative thinking by having students choose their own topics for papers or presentations, choose their own ways of solving problems.
- ❖ Allow the students to pick their own topics, subject to teacher's approval, on at least one paper each term. Approval ensures that the topic is relevant to the lesson and has a chance of leading to a successful project.
- ❖ The environment for generating ideas must be relatively free of criticism. The students may acknowledge that some ideas are better or worse, but teacher must not be harsh or critical.
- ❖ Aim to identify and encourage any creative aspects of the ideas presented and suggest new approaches to any ideas that are simply uncreative.

- ❖ Praise the students for generating many ideas, regardless of whether some are silly or unrelated, while encouraging them to identify and develop their best ideas into high-quality projects.
 - ❖ Teaching students the value of generating numerous ideas enhances their creative-thinking ability and benefits them now and in the future.
 - ❖ Stimulate creativity by helping students to think across subjects and disciplines. Creative ideas and insights often result from integrating material across subject areas, not from memorizing and reciting material.
 - ❖ To encourage creativity, at least some opportunities for creative thought in assignments and tests must be included. Ask questions that require factual recall, analytic thinking, and creative thinking.
6. Current assessment procedures need to be more flexible if creativity is to be fostered.

Teachers emphasize risk-taking as it will help students learn to take sensible risks, encourage them to take some intellectual risks with

courses, activities, and teachers-to develop a sense of how to assess risks.

Since the investigator applies a lot of language learning activities and co-curricular activities in and outside his classrooms with an end in view to promote creativity, in the present study he selected and investigated the strategies of teaching English in a scientific way.

As the investigator found that the strategies employed for the present study are effective for nurturing the creativity of the higher secondary school students, the strategies are hoped to be highly significant in the educational field.

This study is only a humble attempt in exploring ways to enhance the creativity of the students by way of teaching language skills. In future, more rigorous attempts can be conducted on evaluating the strategies.

Thus a global application of these strategies for teaching, presently selected, investigated and verified in the study, is expected by the investigator to enable and provide all the students to think creatively to face challenges and demands of the emerging trends in life in the e-world.

SUGGESTIONS FOR FURTHER RESEARCH

Since the present study throws light on an area of language teaching strategies and its effect on nurturing creativity, this study leads to some suggestion for further research.

1. As English is one of the languages taught in the higher secondary classes, these selected strategies can be investigated for its effect on nurturing creativity even for the teaching of other languages like, Malayalam, Hindi, Arabic and Sanskrit etc.
2. In the present study the effect of these strategies are tested only on nurturing creativity. The same strategies can be investigated to see their effect on developing the said skills too.
3. The same strategies can be employed for teacher trainees and the effect can be measured on nurturing their creativity. Along with this, their attitude to this language teaching strategies can also be evaluated.
4. The experimental study can be replicated to test the effect by employing different sample from various stages of education ranging from primary to post graduate levels.

5. The effect of these strategies on nurturing creativity can be tested for its impact on sex difference.
6. As teachers are the chief cause for social change research for providing training in creativity based strategies of teaching are to be conducted.

2/5/17

APPENDIX

3. Write as many words as possible each of which ends with the letter 'E'.

4. Write as many words as possible each of which starts with letter 'O'.

5. Use as many words as possible where letter 'Q' is used.

Part 2

Directions: You will see below the names of certain thing. For each thing write their different uses as many as you can. Write their uses the way you think quickly.

Example: Wood: for burning, making furniture, building house, making wooden articles etc.

6. Brick

7. Pencil

8. Brush

9. Water

10. Book

Part - 3

Direction: A few words are given below, which can be used in different situations. Give as many related words as you can briefly. You need not write in sentences. From the example given below, you will be clear as to how you have to answer.

Example: Black: Dark, night, blanket, water, colour, hail shirt. etc.

11. Water

12. Hand

13. Fast

14. Letter

15. Earth

16. Intelligent

Part 4

Direction: You can see the first letter of different words. Using them you can make sentences.

Example: RI.....G.....H

Answer:- Ramu is going home

Rajesh is greeting Hari etc.

17. YA.....N.G

18. I L.....M.V

19. T.....D.....W.....F

20. W H..... T.....R.....W

21. II.....F.....N

Part 5

Directions: Three stories are given below. Read them carefully and suggest suitable and interesting titles. There may be several titles for each story write them quickly.

22. Story – 1

A wicked dog used to go slowly near pedestrians and bite them. His owner tied a bell around his neck so that everybody could know that the dog was coming. The dog also felt happy and started wandering in the entire colony ringing the bell.

23. Story II

A peacock had spread his feathers and started running up and down like a kite. He started ridiculing that kite's feathers are ordinary. He said, "My feathers are decorated with golden, yellow and rainbow colour like that of wardrobes of kings and your are simple ones".

24. Story III

A foolish dog stole a piece of bread and ran towards his home. He crossed a river on the way. He saw his shadow in rive water thinking that his shadow is some other dog he tried to snatch his bread. As soon as he opened his mouth the piece of bread fell down and immersed in water.

Part 6

Direction: A few problem situations are given below. Read them carefully and suggest action to be taken. Write as many actions to be taken as possible in detail.

25. Where there is a theft at home. What all one should do?

26. What will you do to celebrate a happy occasion.

27. You will see incomplete story below try to complete as much as you can.

Once due to shortage of rain the forest could not produce grass sufficiently and the number of plants and trees too became less.

NB 5318



289A

#2

REFERENCES

REFERENCES

BOOKS

Adams-Price, C. E. (1998). *Creativity and successful aging* (ed). New York: Springer.

Albert Rothenberg(1979). *The Emerging Goddess: The Creative Process in Art, Science, and Other Fields*.

Albert, Robert S., and Mark A. Runco. (1999). "A History of Research on Creativity." In *Handbook of Creativity*, edited by Robert J. Sternberg. Cambridge, U.K.: Cambridge University Press,.

Alexander, R. (1995). *Versions of primary education*, Routledge, London.

Amabile T (1996) *Creativity in Context* Colorado: West View Press.

Amabile, T, (1988) 'A model of creativity and innovation in organizations' in B.M. Staw & L.L. Cunnings (eds), *Research in Organizational Behavior*, CT: JAI, Greenwich, 1988

Amabile, T. M. (1996). *Creativity in context*. Boulder, CO: Westview Press.

Amabile, T.M. (1998). "How to kill creativity". *Harvard Business Review*.

- Amin M. J., (1988). *To study the effectiveness of creative thinking programmes on the creativity level of the school children in relation to the programme correlates, Ph. D. Edu., SPU.*
- Andersson, A.L. & Ryhammer. (1998). 'Psychoanalytic models of the mind, creative functioning and perceptgenetic reconstruction' in *Psychoanalysis and Contemporary Thought*, 21, pp.359-382.
- Annarella, L.A. (1999). *Encouraging creativity and imagination in the classroom*, Viewpoints, Illinois.
- Anning, A (1994). Play and legislated curriculum in J. Moyles (ed) *The Excellence of Play*. Buckingham: Open University Press.
- Arieti, Silvano, (1976). *Creativity The Magic Synthesis*. New York: Basic Books.
- B.K P assi and D.N. Sansanwal. *Research in teaching : A Trend Report***
- Bachelor, P.A. & Michael, W.B. (1997) 'The structure-of-intellect model revisited' in M.A.Runco (ed), *The Creativity Research Handbook*, vol. 1, Hampton Press, Cresskill.
- Balke, E. (1997). 'Play and the arts: the importance of the "unimportant"', in *Childhood Education*, vol.73, no.6, pp.355-60.
- Ball, S. (1994). *Education reform: a perhaps and post structural approach*, Open University Press, Buckingham.
- Bandrowski, J.F. (1985). *Creative Planning Throughout the Organization*. New York: American Management Association.

- Barron, F. (1988). Putting creativity to work. In Robert J. Sternberg (Ed.). *The nature of Creativity*. Cambridge: Cambridge University.
- Barron, F. (1988). Putting creativity to work. In Robert J. Sternberg (Ed.). *The nature of Creativity*. Cambridge: Cambridge University
- Beetlestone, F. (1998). *Creative Children, Imaginative Teaching*. Buckingham: Open University Press.
- Benjamin, L. (1984). *Creativity and counselling. Highlights: an ERIC/CAPS factsheet*, Ann Arbor, MI, School of Education, University of Michigan, USA.
- Best, J.W. & Khan, J.V. (1996). *Research in education*. New Delhi, Prentice Hall of India.
- Binet, A. & Henri, V. (1896). 'La psychologie individuelle' in *Annee Psychologie*, 2, pp. 411-465
- Brumfit, C.J. (ed.) (1982). *English for International Communication*. Oxford: Pergamon.
- Clark, B. (2002). *Growing up gifted* (6th Ed.). Upper Saddle River, New Jersey: Pearson Education, Inc.
- Cox, C.B. and Dyson, A.E. (1971). *The Black papers on education, a revised edition*, Davis-Poynter, London.
- Craft, A, Jeffrey, B, Leibling, M. (2000). *Creativity in education: current perspectives on policy and practice*, Cassell, London.

- Craft, A. (2000). *Creativity Across the Primary Curriculum: Framing and Developing Practice*. London: Routledge.
- Cropley, A.J. (1999). Education. In Runco, M.A., Pritzker, S.R. (Ed.), *Encyclopedia of Creativity*. San Diego, Calif.: Academic Press, Vol. 1, pp.629-642.
- Csikszentmihalyi, M (1996). *Creativity: Flow and the Psychology of Discovery and Invention*. New York: HarperCollins.
- Czikszentmihalyi, M. (1998). 'Society, culture and person: a systems view of creativity' in R.J. Sternberg (ed) *The nature of creativity*, Cambridge University Press, Cambridge, pp.325-339.
- Dacey, J. & Lennon, K. (2000). *Understanding creativity: the interplay of biological, psychological and social factors*, Creative Education Foundation, Buffalo, New York.
- Dacey, J. S., & Lennon, K. H. (1998). *Understanding creativity: The interplay of biological, psychological, and social factors*. San Francisco: Jossey-Bass.
- Dacey, John S., (1989). *Fundamentals Of Creative Thinking*. Lexington Mass: Lexington.
- Dadds, M. (1993). 'The feeling of thinking in professional self-study' in *Educational Action Research*, 1 (2). pp.287-303.
- Dadds, M. (1995). 'Continuing professional development: nurturing the expert within' in *Cambridge Institute of Education Newsletter*, 30, Autumn/Winter.

- Edwards, C.P. and Springate, K.W. (1995). *Encouraging Creativity in Early Childhood Classrooms* (ERIC Digest). Urbana, IL: ERIC Clearinghouse on Elementary and Early Childhood Education (ED389474).
- Eisenmann, R. (1997). 'Mental illness, deviance and creativity' in M.A.Runco (ed) *The creative research handbook*, vol.1, Hampton Press, Cresskill, New Jersey.
- Ekvall, G. (1991) 'The organizational culture of idea management: a creative climate for the management of ideas' in J. Henry & D. Walker (eds) *Managing innovation*, Sage, London.
- Ekvall, G. (1996) 'Organizational climate for creativity and innovation' in *European work and organizational psychology*, 5, pp.105-123
- Elliott, R.K. (1971) 'Versions of creativity' in *Proceedings of the Philosophy of Education Society of Great Britain*, 5, 2.
- Eysenck, H.J. (1997). 'Creativity and personality' in M.A.Runco (ed), *The Creativity Research Handbook*, vol.1, Hampton Press, Cresskill, New Jersey.
- Fatt, James Poon Teng. (1997). 'Creative Education' in *Industry and Higher Education*, vol.11, no.2, April 1997, pp.106-115
- Fatt, James Poon Teng. (1998). 'Creativity in business and innovative organizations' in *Industry and Higher Education*, vol.12, no.2, pp.84-92

- Feldman, D. H. (1999). The development of creativity. In R. J. Sternberg (Ed.), *Handbook of creativity* (pp. 169-186). New York: Cambridge University Press.
- Feldman, D. H. (1999). The development of creativity. In R. J. Sternberg (Ed.), *Handbook of creativity*. New York: Cambridge University Press, pp. 169-186.
- Feldman, D., Csikszentmihalyi, M., & Gardner, H. (1994). *Changing the world: A framework for the study of creativity*. Westport, CT and London: Praeger.
- Feuerstein, R., Rand, Y., Hoffman, M. B., & Miller, R. (1980). *Instrumental enrichment: An intervention program for cognitive modifiability*. Glenview, IL: University Park Press.
- Friger, Robert, & Fadiman, James, (1984). *Personality and Psychotherapy*. Cambridge: Harper & Row.
- Freud, S. (1957). 'Leonardo da Vinci and a memory of his childhood' in *Standard Edition*, Hogarth Press, London.
- Fritz, R (1991) *Creating*. New York: Fawcett.
- Fryer, M. (1996). *Creative teaching and learning*, Paul Chapman Publishing Ltd, London.
- Galton, F. (1869). *Hereditary Genius: an inquiry into its laws and consequences*, Macmillan, London.
- Gamez George (2003). *Creativity : How to catch lightening in a bottle*. Jaico Books.

- Gardner, H. (1994). *Creating Minds*. Basic Books.
- Gardner, Howard. (1993). *Creating Minds*. New York: Basic Books.
- Getzels, J.W. & Csikszentmihalyi, M. (1976). *The creative vision: a longitudinal study of problem-solving in art*, Wiley, New York.
- Getzels. (1975). (eds) *Perspectives in creativity*, Aldine, Chicago IL,
- Ghiselin, Brewster. (1952). ed. *The Creative Process: A Symposium*. New York: Mentor.
- Giuseppe Tidona, 2001, (Can we improve thinking and creativity in school children?) *DIALOGO – mensile regionale di cultura, politica e attualita'*, n. 7, anno XXVI, October 2001
- Good, C. V. (1973). *Dictionary of Education*, (3rd ed.). New York. Mc Graw Hill.
- Grof, Stanislav, (1988). *The Adventure of Self-Discovery*. Albany: State Univ. of New York.
- Guilford, J. P. (1958). Can Creativity be Developed. *Art Education*, 11, 3-7 & 14-18.
- Guilford, J.P. (1950). 'Creativity' in *American Psychologist*, 5, pp. 444-445
- Halliwell, S. (1993). 'Teacher creativity and teacher education' in Bridges, D. & Kerry, T. (eds) *Developing teachers professionally*, Routledge, London and New York.
- Hargreaves, A. (1994). *Changing teachers, changing times: teachers' work and culture in the post-modern age*, Cassell, London.

- Harman, Willis, & Rheingold, Howard, (1984). *Higher Creativity*. Los Angeles: J. P. Tarcher.
- Heeboll, J. (1997). 'Can entrepreneurship be taught? A Danish case study' in *Industry and Higher Education*, vol.11, no.3, pp.171-73.
- Heilman KM, Nadeau SE, Beversdorf D.O (2003). Creative innovation: possible brain mechanisms. *Neurocase*. 9:369-379.
- Isaksen, S. G. (1995). CPS: Linking creativity and problem solving. In G. Kaufmann, T. Helstrup, & K. H. Teigen, (Eds.), *Problem solving and cognitive processes: A festschrift in honour of Kjell Raaheim*. pp. 145-181.
- Isaksen, S. G., & Parnes, S. J. (1992). Curriculum planning for creative thinking and problem solving. In *Sourcebook For Creative Problem Solving*. Buffalo, New York:
- Isaksen, S.G. and Trefflinger, D.J. (1985). *Creative Problem Solving: The Basic Course*. Buffalo, New York: Bearly Publishing.
- Jalongo, M. (2003). The child's right to creative thought and expression. *Childhood Education*, 79(4), pp.218-228.
- Jeffrey, B and Craft, A (2001). The Universalization of Creativity in A. Craft, B. Jeffrey and M. Leibling (eds) *Creativity in Education*. London: Continuum.
- Johnson, R. E., & Khatena, J. (1975). Comparative study of verbal originality in deaf and hearing children. *Perceptual and Motor Skills*, 40, pp.631-635.

- Jones, H. & Jenkins, S. (1999) 'Networking for innovation in South Wales, experiences in developing productive links between university and industry' in *Industry and Higher Education*, vol.13, no.1, pp. 65-71.
- Keegan, R. T. (1996). "Creativity from Childhood to Adulthood: A Difference of Degree and Not of Kind." In *Creativity from childhood through adulthood. new directions for child development no. 72*, edited by M. A. Runco, pp. 57-66. San Francisco: Jossey-Bass.
- Kessler, R. (2000). *The soul of education: helping students find connection, compassion and character at school*, Association for Supervision and Curriculum Development, Alexandria, Virginia.
- Khatena, J. (1982). 'Myth: creativity is too difficult to measure!' in *Gifted Child Quarterly*, 26. pp.21-23.
- Koberg, D and Bagnall, J (1981) *The All New Universal Traveler: A Soft-Systems Guide To Creativity, Problem-Solving, And The Process Of Reaching Goals*. Los Altos, CA: William Kaufmann, Inc.
- Koestler, Arthur, (1964). *The Act of Creation*. London: Arkana.
- Krishnamurthi, J. (1992). *Education and significance of Life*. Krishna Murthi Foundation, India.
- Kuppuswamy, B. (1980). *Child behaviour and development*. Ghaziabad, UP. Vikas Publishing House.

- Leach, J (2001). A Hundred Possibilities: Creativity, Community and ICT in A. Craft, B. Jeffrey and M. Leibling (eds) *Creativity in Education*. London: Continuum.
- LeoNora M ., Cohen & Erica Frydenberg. (1996). *Coping for Capable Kids: Strategies for Parents, Teachers, and Students*, A guide for gifted kids, their parents and teachers. Contains information on social problems, perfectionism, time management, goal setting and more.
- Lubart, T. I. (1999). Creativity across cultures. In R. J. Sternberg (Ed.), *Handbook of creativity*. New York: Cambridge University Press, pp. 339-350
- Lubart, T. I. (1999). Creativity across cultures. In R. J. Sternberg (Ed.), *Handbook of creativity*. New York: Cambridge University Press, pp. 339-350.
- Lubart, T. I. (1999). Creativity across cultures. In R. J. Sternberg (Ed.), *Handbook of creativity*. New York: Cambridge University Press, pp. 339-350.
- Lucas, B. (2001). 'The power of creative interventions for learners' in Craft, A, Jeffrey, B, Leibling, M. *Creativity in education: current perspectives on policy and practice*, Continuum, London.
- Lytton Hugh. (1971). Routledge and Keegan Paul, London.
- M. K. Raina (Ed.)(1998). The Creative Studies Project at Buffalo State University College. In: *Creativity research: International*

- perspectives*. New Delhi, India: National Council for Educational Research and Training, pp.272-274.
- MacKinnon, D.W. (1975). 'IPAR's contribution to the conceptualization and study of creativity' in Taylor & Mahler, M. S., Pine, F., and Bergman, A. *The Psychological Birth of the Human Infant*. New York: Basic Books.
- Maslow , Abraham H., (1962). *The Creative Attitude*. San Jose Ca.: Psychosynthesis Distribution . (Reprinted from *The Structurist* 3, 1963. Saskatoon, Saskatchewan: University of Saskatchewan, 8th National Assembly of the Canadian Society for Education Through Art)
- Maslow, A. (1963). *Toward a psychology of being (2nd ed.)*. Princeton, NJ: Van Norstrand.
- May, Rollo, (1975). *The Courage To Create*. Toronto: Bantam.
- Mayer, R.E. (1999). Fifty years of creativity research. In Sternberg, R.J. (Ed.), *Handbook of Creativity*. Cambridge: University Press.
- McCracken, J. L. (1998). "Examining the Impact of Formal and Informal Learning on the Creativity of Women Inventors." In 39th annual adult education research conference proceedings, compiled by J. C. Kimmel, pp. 221-226. San Antonio, TX: University of the Incarnate Word.
- Meador, K. (1999). Creativity around the globe. *Childhood Education*, 75, 324-325.

- Miel, A. (1961). *Creativity in teaching*. Belmont, Cali.: Teacher College, Columbia University.
- Mooney, R.L. (1963). 'A conceptual model for integrating four approaches to the identification of creative talent' in C.W.Taylor & F. Barron (eds) *Scientific creativity*, Wiley, New York. pp.331-340.
- Nandanpawar, B.S. (1986). *Development of Linguistic Creativity among the Students-An Experimental Study*, Ph.D. Edu., Nag. U.
- National Advisory Committee on Creative and Cultural Education (NACCCE). (1999). *All our futures: creativity, culture and education*, Department for Education and Employment, London.
- Nickerson, R.S. (1999). Enhancing creativity. In Sternberg, R.J. (Ed.), *Handbook of Creativity*. Cambridge: University Press.
- Nickerson, R.S. (1999). Enhancing creativity. In Sternberg, R.J. (Ed.), *Handbook of Creativity*. Cambridge: University Press.
- Osborn Alex. (1992). *Your creative power*, Better yourself books, Bombay.
- Osborn, A.F. (1953). *Applied imagination*. New York: Scribner's.
- Osborne, (1992) *Applied imagination*, St Paul, Books
- Parnes, S. J. (Ed.). (1992). *Source book for creative problem solving*. Buffalo, NY: Creative Education Foundation.
- Passi B.K and Anadi Martis(1993). *Creativity and Synectics*. Bargavea Book House,Agra.

- Passi, B.K. (1982). *Creativity in Education*, Agra, National psychological Corporation.
- Patel, J.Z. (1987). An Investigation into the Effectiveness of the Purdue Creative Thinking Programme on the Creative Abilities of Elementary School Children, Dept. of Education, SPU,
- Patel, R.P. (1988). Development of Brainstorming Technique Programme and to Study Its Effects on Creativity of the Secondary School Children, Ph.D. Edu., SPU,
- Penny Ur (1996). *Five minutes activities; A resource book for language teachers*, Cambridge university press
- Perkins D. N. (1988). The possibility of invention. In Robert J. Sternberg (Ed.). *The nature of Creativity*. Cambridge: Cambridge University.
- Perkins, D.N (1981). *The Mind's Best Work*. Cambridge, MA: Harvard University Press.
- Perkins, D.N. (1999). 'The many faces of constructivism' in *Educational Leadership*, vol.57, no.3, pp. 6-11
- Poincare, H, *The foundations of science*, Science Press, Lancaster, PA, 1913.
- Prouty, D. (2000). Creativity. *Zip Lines: The Voice for Adventure Education*
- Randi, H., & Corno, L. (1997). Teachers as innovators. In Biddle, B. J., Good, T. L., & Goodson, I. F. (Eds.), *International handbook of teachers and teaching*, pp. 1163-1221.

- Reber, Arthur S. (1985). *Dictionary of Psychology*. New York: Penguin.
- Ripple, R. E. (1989). Ordinary creativity. *Contemporary Educational Psychology*, 14, New Harbinger Publications, pp.189-202.
- Ripple, R.E. (1999). Teaching creativity. In Runco, M.A., Pritzker, S.R. (Ed.), *Encyclopedia of Creativity*. San Diego, Calif.: Academic Press, Vol. 2, pp.629-638
- Rossman, J. (1931). *The Psychology of the Inventor*. Washington DC: Inventor's Publishing.
- Rubin, L. J. (1985). *Artistry in teaching*. NYC: Random House.
- Samuels, Mike, & Samuels, Nancy, (1975). *Seeing With The Mind's Eye*. New York: Random House.
- Sasser-Coen, J. R. (1993) "Qualitative Changes in Creativity in the Second Half of Life." *JOURNAL OF CREATIVE BEHAVIOR* 27, no. 1 : 18-27.
- Schoon, I. (1992). *Creative achievement in architecture: a psychological study*, DSWO Press, Leiden, 1992.
- Seltzer, K. & Bentley, T. (1999). *The creative age: knowledge and skills for the new economy*, Demos, London.
- Seltzer, K. & Bentley, T. (1999). *The creative age: knowledge and skills for the new economy*, Demos, London.
- Shagoury-Hubbard, R (1996). *Workshop of the Possible: Nurturing Children's Creative Development*. Maine: Stenhouse Publishers.

- Shallcross, D.J. (1981). *Teaching creative behaviour: how to teach creativity in children of all ages*, Prentice- Hall, Englewood Cliffs, New Jersey.
- Shanta Rameshwar Rao (2002). *Singing Rivers and Speaking stones. An Anthology of Prose and Poetry*. Orient Longman, Chennai
- Shaw, M.P. & Runco, M.A. (eds), *Creativity and effect*, Ablex, Norwood, New Jersey.
- Simonton, D.K. (1984). *Genius, creativity and leadership: historiometric enquiries*, Harvard University Press, Cambridge, MA.
- Simonton, D.K. (1988). "Creativity, leadership, and chance," in Sternberg, RJ (ed) *The Nature of Creativity*. Cambridge, England: Cambridge Univ. Press.
- Singh, R.S. (1986). A study of achievement motivation, level of aspiration and anxiety as correlates of creativity in denotified tribal children, Ph.D. Edu., Avadh U.,
- Sisk, D.A. (1989). *Creativity: potential and progress*, paper presented at the Suncoast Music Education Forum, Florida.
- Smith(1975) *Creative teaching of reading in the elementary school*.
- Smith, G.J.W. & Carlsson, I. (1990). 'The creative process. A functional model based on empirical studies from early childhood to middle age' in *Psychological Issues monograph 57*, International Universities Press, New York.

- Spearman C. (1931). *Creative Mind*. New York : Appleton-Century Crofts;
- Stein, M. I. (1974). *Stimulating creativity: Individual procedures*. New York: Academic Press.
- Sternberg, R. J. & Lubart, T.L. (1991). 'An investment theory of creativity and its development' in *Human Development*, 34, 1991, pages 1-31
- Sternberg, R. J. & Lubart, T.L. (1995). *Defying the crowd. Cultivating creativity in a culture of conformity*, The Free Press, New York.
- Sternberg, R. J. & Lubart, T.L. (1999). 'Creating creative minds' in *Phi Delta Kappan*, April 1991, pp.608-614.
- Sternberg, R. J. (1988). *The Nature of Creativity*. New York: Cambridge University Press.
- Sternberg, R. J. (1997). *Successful intelligence*. New York: Plume.
- Sternberg, R. J., & Williams, W. M. (1996). *How to develop students creativity*. Alexanda, VA: Association for Supervision and Curriculum Development.
- Sternberg, R.J & Lubart, T.I. (1999). The concept of creativity: prospects and paradigms. *Handbook of Creativity*. R. J. Sternberg. Cambridge, UK: Cambridge University Press.
- Stoycheva, K. (1996). *The school: a place for children's creativity?*, paper presented at the European Council for High Ability Conference, Vienna, Austria.

- Talegaonkar, A., *To develop Teaching Strategies to Encourage Students to Solve Problems in Science Creativity Jnan Prabodhini*, Pune, 1984 (SIE financed)
- Taylor, C. W., (1988). Approaches to and definitions of creativity. In Robert J. Sternberg (Ed.). *The nature of Creativity*. Cambridge: Cambridge University, pp.118-119.
- Tegart, G. (1996). 'The co-operative research centres programme: an Australian initiative to link research to commercialization' in *Industry and Higher Education*, vol.10, no.3, pp.160-169.
- Tomlinson, C. A., Kaplan, S. N., Renzulli, J. S., Purcell, J., Leppien, J., & Burns, D. (2002). *The parallel curriculum a design to develop high potential and challenge high-ability learners*. Thousand Oaks, CA: Corwin Press, Inc.
- Torrance, E.P. (1962). *Torrance tests of creativity*, Personnel Press, Princeton.
- Torrance, E.P. (1966). *Torrance tests of creativity*, Personnel Press, Princeton.
- Torrance, E.P. (1969). *Creativity. What research says to the teacher*, series no.28, National Education Association, Washington, DC.
- Torrance, E.P. (1974). *Torrance tests of creative thinking*, Ginn & Company (Xerox Corporation), Lexington.
- Torrance, E.P. (1974). *Torrance Tests of Creative Thinking*. Personnel Press.

- Upadhye, R (1981). An experimental study of the effect of stimulating environment on change in creative ability of young children, Ph.D. Edu., Born. U.
- Ur Penny. (1988). *Grammar Practice Activity, A practical Guide for Teachers*, Cambridge University Press.
- Ur Penny. (1992). *Five minute activities*. Cambridge University Press.
- Vaux, J.H. (1999). 'Managing to avoid innovation: problems of technology transfer in small firms' in *Industry and Higher Education*, vol.13, no.1, pp.25-32
- Vernon, P.E. (1984). 'The nature-nurture problem in creativity' in J.A.Glover, R.R.Ronning & C.R. Reynolds (eds) *Handbook of creativity: perspectives on individual differences*, Plenum Press, New York.
- Vora, Gira, C. (1984). An Investigation into the Impact of Divergent Thinking Programme in Mathematics on Creative Levels of Children of Classes VII and VIII, Ph.D. Edu., SPU.
- Wallace, D.B. & Gruber, H.E. (1992). *Creative People at Work*. New York: Oxford University Press.
- Wallach, M. A., & Kogan, N. (1965). *Modes of thinking in young children: A study of the creativity-intelligence distinction*. New York: Hort, Pinehart & Winston.
- Wallas, Graham. (1926). *The Art of Thought*. London: Jonathan Cape.

- Walshok, M.L. (1996). 'Expanding roles for US research universities in economic development' in *Industry and Higher Education*, vol.10, pp.142-150.
- Weaver, R.Y. (1999). 'Society, educational systems and entrepreneurship' in *Industry and Higher Education*, vol.13, no.6, pp.376-381.
- Weisberg, RW (1993) *Creativity: Beyond the Myth of Genius*. New York: W.H. Freeman
- Whitaker, P (1997). *Primary Schools and the Future: Celebration, Challenges and Choices*. Buckingham: Open University Press.
- Woods, P, Jeffrey, B, Troman, G & Boyle, M. (1997). *Restructuring schools, restructuring teachers: responding to change in the primary school*, Open University Press, Buckingham.
- Woods, P. & Jeffrey, B. (1996). *Teachable moments: the art of teaching in primary schools*, Open University Press, Buckingham.
- Woods, P. (1990). *Teacher skills and strategies*, Falmer Press, Lewes.
- Woods, P. (1993). *Critical events in teaching and learning*, Falmer Press, Lewes.
- Woods, P. (1995). *Creative teachers in primary schools*, Open University Press, Buckingham.
- Woolhouse, J. & Cramphorn, J. (1999). 'The role of education in economic development' in *Industry and Higher Education*, vol.13, no.3, pp.169-175.

JOURNALS

- Acharyulu, S.T & Yesodhara, P. (1984). Assessment of creative thinking abilities of pre-school children through spontaneous drawing. *Psychological studies*, 29, 190-196.
- Ahmed, A. (1986). Creativity and family background of adivasi female students. *Experiments in Education*, 14-29.
- Ahmed, A. (1987). Sex and Community as the determinants of creativity. *Experiments in Education*, 15, 29-36.
- Ainsworth-Land, V. (1982). Imaging and creativity: An integrating perspective. *Journal of Creative Behavior*, 16, 5-28.
- Asha, C. B (1983). Creativity of children of working mothers. *Psychological studies*, 28, 104-106.
- Besemer, S. P. & Treffinger, D. J. (1981). 'Analysis of creative products: review and synthesis' in *The Journal of Creative Behavior*, vol.15, no.3, 158-77
- Campbell, D.T. (1960). "Blind variation and selective retention in creative thought as in other knowledge processes." *Psychological Review*, Vol. 67, pp. 380-400.
- Cane, F. (1999). 'The artist in each of us', *Namta Journal*, 24, 3, 21-37.
- Chaddha, N.K.G. & Sen, A. K. (1981). Creativity as a function of intelligence, socio-economic status and sex among 12th grade school students, *Journal of Education Psychology*, 29, 52-56.

- Craft, A (1996). 'Nourishing educator creativity: a holistic approach to CPD' in *British journal of in-service education*, vol.22, no.3, Autumn, 309-322
- Craft, A (1999). 'Creative development in the early years: implications of policy for practice' in *The Curriculum Journal*, vol.10, no.1, Spring, 135-150.
- Dantus, O. (1999). 'Artistic expression and the unfolding self: expressive adults, expressive children' in *Namta Journal*, vol.24, Summer, 5-18.
- Farilal, S. (1982). The effect of birth order on creative thinking abilities among adolescence. In *Psychological Abstract*, 48, 16082.
- Freeman, R. & Joan, N. (1985). The early years : preparation for creative thinking. *Gifted Education International* , 3, 100-104.
- Geitika Dutta, S. (1982). Sex differences in creativity among the tribes of Meghalaya. *Journal of the institute of Educational Research*, 9, 13.
- Greenberg, E (1992). 'Creativity, autonomy and evaluation of creative work: artistic workers in organizations' in *Journal of Creative Behavior*, vol.26, no.2, 75-80
- Hennessey, B. A. (1995). Social, environmental, and developmental issues and creativity. *Educational Psychology Review*, 7(2), pp.163-183.
- Jackson, P. W. & Messick, S. (1965). 'The person, the product and the response: conceptual problems in the assessment of creativity' in *Journal of Personality*, 33, 1-19

- Jarial, G.S. & Sharma, A.K. (1982). The effect of birth order upon intelligence and creativity, A review of studies, *Journal of the Institute of Educational Research*, 5, 30-33.
- Kirschenbaum, R. J., and Reis, S. M. (1997). "Conflicts in Creativity: Talented Female Artists." *Creativity Research Journal* 10, nos. 2-3, 251-263.
- Kirschenbaum, R.J. (1998) 'The creativity classification system: an assessment theory' in *Roepler Review*, vol.21, no.1, pp.20-26
- Kovae, E. Thomas, M. (1987). Relationship between creativity and intelligence at pre-school stage. *In Psychological Abstract*, 30, 9114.
- Krishnan, A.P. (1980). An experimental investigation of the relationship between creativity and rigidity. *Journal of the institute of Educational Research*, 4, 39-41.
- Kumari, S.J. et al. (1986). Creativity among tribal children in relation to SES and Sex, *Asian Journal of Psychology and Education*, 11, 2-16.
- Kvashny, A. (1982). Enhancing Creativity in Landscape Architectural Education. *Landscape Journal*. 1, 2, 104-109
- Mansfield, R.S, Busse, T.V. & Krepela, E.J. (1978) 'The effectiveness of creativity training' in *Review of Educational Research*, 4, pp.517-536.

- Minhas, L.S. (1981). A factor analytic study of psychometric and projective indices of creativity and those of intelligence and personality. *Personality study and Behaviour*, 1, 26-34.
- Murdock, M. (2003). The effects of teaching programmes intended to stimulate creativity: A disciplinary view. *Scandinavian Journal of Educational Research*, 47(3), 339-358.
- Pillai. K.S (1988). Creativity is affected by locale, sex and attitude towards problem solving. *Experiments in Education*, 16 (6). 121-127.
- Plucker, Jonathan A. & Runco, Mark A. (1998). 'The death of creativity measurement has been greatly exaggerated: current issues, recent advances, and future directions in creativity assessment' in *Roeper Review*, vol.21, no.1, pp.36-39
- Rastogi, M. & Nathawat, S.S. (1982). Effect of creativity and on mental health, *psychological studies*, 27, 32-39.
- Reddy, V.R.A & Reddy, B.P. (1983). Creativity and intelligence. *Psychological Studies*, 28, 22-35.
- Rhyammar, L and Brolin, C (1999). Creativity research: historical considerations and main lines of development. *Scandinavian Journal of Educational Research* 43(3), 259-273.
- Runco, M. (2003). Education for creative potential. *Scandinavian Journal of Educational Research*, 47(3), 317-324.

- Runco, M.A. & Nemiro, J.(1994). Problem Finding, Creativity, and Giftedness. *Roeper Review*, 16(4), 235-241.
- Runco, M.A. & Nemiro, J.(1994). Problem Finding, Creativity, and Giftedness. *Roeper Review*, 16(4) 235-241.
- Ryhammar, L. & Brodin, C. (1999). 'Creativity research: historical considerations and main lines of development' in *Scandinavian Journal of Educational Research*, vol.43, no.3, 259-273
- Sansanwal, D.N. & Jarial, G. S. (1983). Creativity and its components in relation to different levels of intelligence and academic subjects among high school students, *Asian Journal of Psychology and Education*, 11, 9-13.
- Shylaja, R. (1997). A study of Academic Anxiety, Feelings of Security/Insecurity and Divergent production Ability on English Language Achievement, Doctoral Dissertation, Choudhury Charan Singh University, Meerut.
- Singh, J. G. (1981). Creativity, intelligence and academic achievement their relationship and difference with reference to sex and academic subjects. *Journal of Education and Psychology*, 2, 39, 49.
- Singh, J.G. (1985). Creativity, intelligence and academic achievement their relationship and difference with reference to sex and academic subjects. *Journal of Education and Psychology*, 39, 2, 49.

- Spiel, C. & Von Korff. (1998). 'Implicit theories of creativity: the conceptions of politicians, scientists, artists and school teachers' in *Journal of High Ability Studies*, vol.9, no.1.
- Sumangala, V. (1987). Socio-familial factor structure of high and low creative secondary pupils. *Experiments in Education*, 16, 25-32.
- Verma, L.K (1981). Humar differences among creative and non-creative high school students from various academic streams. *Indian Psychological Review*, 20, 1-6.
- Welle-strand, A., & Tjeldvoll, A. (2003). Creativity, curricula and paradigms. *Scandinavian Journal of Educational Research*, 47(3), 359-372.

DISSERTATIONS AND TECHNICAL REPORTS

- Ajitha Kumari, T. (1999). Identifying some correlates of creativity and nurturing the creative potential at the pre-school stage, Doctoral Dissertation, University of Calicut.
- Ismail, M. (1998). Effect of Synectics model of teaching English on fostering creativity of secondary school pupils, Masters dissertation, University of Calicut.
- Shylaja, R. (1997). A study of Academic Anxiety, Feelings of Security/Insecurity and Divergent production Ability on English Language Achievement, Doctoral Dissertation, Choudhury Charan Singh University, Meerut.

WEBSITES

<http://www.neuropsychiatryreviews.com/may06/einstein.html>

<http://www.education.nic.in/cd50years>

<http://www.education.nic.in/cd50years/home.htm>

<http://www.education.nic.in/cd50years/g/Z/9I/0Z9I0A02.htm>

<http://musee-du-jouet.fr/europe/sociology.doc>

<http://eric.ed.gov/ERICWebPortal>