STUDY OF EFFECTIVENESS OF CREATIVE TEACHING METHODS IN SOCIAL SCIENCE INSTRUCTION (GEOGRAPHY) FOR HIGHER PRIMARY CHILDREN WITH HEARING IMPAIRMENT

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A Dissertation Submitted in part fulfillment for the
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MAY 2009

DEDICATED TO…

My lovely Parents

Roshana & Balaraj

And my loving Brothers

Deva Prasad

&

Karuna Prasad

<u>Certificate</u>

This is to certify that this Master's Dissertation entitled **'Study of Effectiveness of Creative Teaching Methods in Social Science (Geography) Instruction for Higher Primary Children with Hearing Impairment'** is a bonafide work in part fulfillment for the degree of master of (special education) of the student (Registration No.08MSD003). This has been carried out under the guidance of a faculty of this institute and has not been submitted earlier to any other University for the award of any other Diploma or Degree.

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May, 2009

<u>Declaration</u>

This is to certify that this Master's Dissertation entitled **'Study of Effectiveness of Creative Teaching Methods in Social Science (Geography) Instruction for Higher Primary Children with Hearing Impairment'** is the result of my own study and has not been submitted earlier in any other University for the award of any Diploma or Degree.

Mysore   Register No.08MSD003
May, 2009

Acknowledgements

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

Chapter I

INTRODUCTION

CHAPTER I

INTRODUCTION

1.1 EDUCATION OF CHILDREN WITH HEARING IMPAIRMENT

1.1.1 Implications of Hearing Impairment in Children

The primary implication of hearing impairment is that the child is not able to hear the sounds in the environment including speech sounds. The secondary implication is that they are not able to develop language competencies and speech skills as they are not exposed to them in the environment. As a tertiary consequence children with hearing impairment also face difficulty in school learning, because of inadequate language skills.

Difficulties faced by children with hearing impairment in academic learning arise primarily from their difficulties in speech and language, which may in turn vary according to their degrees of hearing loss. They may find it difficult to follow verbal instruction in the classroom. They may also have problems with proper articulation, breath and pitch control and their voices tend to be monotonous. All these make it difficult for them to communicate in the classroom. In language learning, they may have difficulties in understanding abstract vocabulary, complicated sentence structures and unfamiliar concepts. They may also have difficulties in learning to read and write.

Language plays an important role in the higher intellectual development, especially in problem solving. Deafness may cause a language deficit, which in turn affects progress in learning. Many children with hearing impairment tend to be rather weak in abstract thinking and analytical power. This can be a hindrance to their acquisition of knowledge (Hongkong review of rehabilitation program plan, 1999), and academic learning. Therefore as part of special education measures, efforts are taken to

- Help children with hearing impairment develop their potential to the full by providing them with learning experiences in school.

- Encourage children with hearing impairment to use their residual hearing to develop as much language as possible so that they can master adequate communication skills for use in their everyday life.

- Help children with hearing impairment grow up well-adjusted and independent so that they can integrate into society.

- Help children with hearing impairment develop a correct sense of value and citizenship (Hong Kong review of rehabilitation program plan, 1999).

1.1.2 Difficulties Faced By Children with Hearing Impairment in Academic Learning and School

In spite of special educational efforts, the average student with hearing impairment shows an ever increasing gap in vocabulary

growth, complex sentence comprehension and construction, and in concept formation as compared to students with normal hearing. Children with hearing impairment often pretend to understand in classroom with the end result being that the student does not have optimal learning opportunities. Therefore, facilitative strategies for children with hearing impairment have to be primarily concerned with various aspects of communication. Problems arise because deafness is an invisible disability. It is easy for teachers to 'forget about it' and treat the student as not having a disability. As a result most of the teaching involves verbal instruction which is difficult for the children with hearing impairment to follow. It has also been shown that only children with hearing impairment with good language skills also have good science concept formation (Keller et al.1983).

1.1.3   Additional Problems in Children with Hearing Impairment

According to Pollack (1997), hearing loss has far-reaching, critical effects on childhood development of cognitive and linguistic skills. The occurrence of other disabilities in combination with diminished hearing creates 'additional learning problems' which significantly add to the complexity of educating the student who is deaf or hard of hearing. The prevalence of other disabilities in addition to hearing loss is approximately three times as large (30.2%) in the deaf or hard of hearing population as in the general school population.

Some of this may be explained by the varying causes of hearing loss. Some of the current documented etiologies of childhood deafness include maternal rubella (2%), prematurity (5%), cytomegalovirus (1%), and meningitis (9%) (Moores, 1987). It is logical to assume that the population demonstrating a hearing loss is at a high risk for additional disabilities since the previously mentioned etiologies are also known to be associated with neurological involvements.

The prevalence of several specific disabilities occurring with diminished hearing has been documented over time (Craig & Craig, 1993, 1983, 1973). The three additional disabilities most often reported in children who are deaf or hard of hearing are learning disabilities, intellectual disabilities, and emotional/behavioral disabilities. The 1993 reference issue of the *American Annals of the Deaf* reports learning disabilities as the largest co-occurring disability at a prevalence of 9%. The prevalence of intellectual disabilities occurring with a hearing loss followed closely at 8%. The co-occurrence of emotional/behavioral disabilities was the least at a 4% occurrence rate.

Thus, having a hearing loss brings with it many characteristics that affect the learning of the student. However, the hearing loss alone is not necessarily accompanied by such characteristics as visual-perceptual problems, attention deficits, perceptual-motor difficulties,

severe inability to learn vocabulary and sentence structures, consistent retention and memory problems or consistent distractive behaviors or emotional factors. If any of these kinds of behaviors characterize the student who is deaf or hard of hearing, then an investigation into the possible influencing factors should be carried out followed by necessary remedial teaching (Pollack, 1997).

1.1.4 Support to Academic Learning in Children with Hearing Impairment

It is very difficult to determine common strategies for leaning problems in students with hearing impairment, primarily because each individual learning profile will be different depending on the number and nature of the various influencing factors. After some time spent looking for 'fix-it' strategies, the professionals in this field appear to be moving toward the belief that all students with hearing losses should have individualized approaches to instruction, including those with additional learning problems (Powers, 1993).

1.1.5 Learning of Social Science in Children with Hearing Impairment

At present, the subject social science is placed in a new and important position in the modern world. Social science, once taken lightly by many school systems, has reached a point were everyone must take a critical look at it and re-examine the goals and objectives as

the promise of the future. It is an essential subject that must be taught in its proper perspective as a guide for living universally (Giangreco & Giangreco, 1976).

Though important, learning social science is not easy. Learning social science includes the problems like; a rapid pace curricula, lack of sufficient practice provided before students, presence of gaps in the developmental sequence of problem types, and frequent overloading of curricula with concept and facts (Idol, et al., 1991). Children with hearing impairment with their deficient language skills also find social science as a very difficult subject, as learning social science involves memorizing a long list of facts generalizations from text books. Their problems in reading further compounds the difficulty (Giangreco & Giangreco, 1976). All these imply that teaching of social science requires some adaptations to make it easy for children with special needs like hearing impairment. Adaptations may include, limiting number of concepts taught and enabling student to generalize the learnt concepts across settings (Cummings, 1994).

1.1.6 Need for Change of Approach in Teaching Social Science to Children with Hearing Impairment.

Though theoretically social science learning is said to include aspects like history, geography, civics and economics; in the real

practical sense social science is a curricular subject that aims to create awareness in the individual learner about the land and people around him / her, as well as realisation about the relationships, value, faith, occupation and other behaviours existing among these people. And most importantly the causes and effects of these events and relationships (Lorton, 1979). Study of these underlying behaviours and cause and effect relationships is most of the time abstract and complex in nature. Most of these information are usually presented in classrooms through verbal information. As discussed earlier, the verbal deficits in children with hearing impairment make learning such abstract and complex concepts in social science difficult for them. Hence, there is need for teachers to rethink conventional methods for teaching social science to students with hearing impairment (Stewart & Kluwin, 2001).

In bringing about changes to the conventional methods of teaching social science, there are several propositions. Perkins (1992) through his research findings suggested that social science is taught best to the students with HI when they are actively engaged in the process. Schmidt, et al. (2001) opined that self-expression is the key principle in the design of social science instruction, especially for learners with hearing impairment. Others like Erickson (1998) expressed that problem solving approach should be adopted, which

actively engages students with hearing impairment in thoughtful application of knowledge. Researches have demonstrated that when students are taught through such unconventional methods they are better able to transfer their knowledge to other tasks than students who learn through conventional manner (Perkins, 1992). Teaching of social science should be based on concept-based curriculum, rather than on a string of topics, dates, names and events (Schmidt, et al., 2001; Erickson, 1998; Perkins 1992).

1.1.7 Use of Creative and Innovative Teaching for Children with Hearing Impairment.

In regards to restructuring conventional teaching-learning process, whenever possible, learners with hearing impairment should be taught through hands-on, multisensory activities that will help them learn experientially as well as linguistically. Learner should be helped to understand the relationships between new concepts that are being taught and their familiar experiences (Munoz, 2000). The teacher should adopt creative teaching in the process. *Creative teaching* could be described as an approach rather than as a method. It could be defined as a process combining existing knowledge in some new form to get the useful result of useful learning in the student (Sale, 2004). To be more specific, creative teaching could be described as a novel and appropriate, useful, correct or valuable response to the teaching-

learning process, which is heuristic rather than algorithmic. And that which contributes to the student learning in a positive way (Amabile, 1996). Creative teaching strategies are innovative teaching strategies that help students learn the basic skills like reading, writing, and arithmetic, as well as more conceptual knowledge in various curricular subjects. Creative teaching strategies encourage students to learn beyond memorization and to use deeper levels of thinking. Creative teaching strategies encourage students to have their own understanding and application of information.

Creative Teaching process may involve a wide range of methods and techniques. Some of the prominent among them are *simulation, games, role-playing etc.* These are highly participatory teaching techniques that have high group–member involvement while facilitating meaningful and fun learning (DeBord, 1989).

To conclude, creative teaching is helpful in enhancing the learning process in the learner, while enriching the teaching job of the educators. Creative teaching strategies are beneficial to all students; especially, students with special needs like hearing impairment. This is because; creative teaching involves many other ways to learn besides simply reading a textbook or listening to a lecture. It involves need-based teaching-learning techniques depending on the individual

student needs, like hands-on learning, visual learning and others (DeBord, 1989).

1.2 NEED FOR THE STUDY

It is evident that creative teaching could be very beneficial to learners with special needs like hearing impairment. However, there is not much information about creative teaching experiments with such children. Also in order to employ creative teaching strategies, a teacher has to be very innovative and understanding of the special learners' needs. Hence, there is need to experiment the specific implications of creative teaching with children with hearing impairment, as well efforts to develop specific creative teaching techniques applicable in teaching abstract and complex concepts in difficult curricular areas like social sciences that can serve as a guide for educators.

There is also another imminent need in developing countries like India where resources and training programs in the field of education are not available to keep pace with the growing technological expansion. Innovative methods and techniques must be developed and used that involve active learning without depending on high technology. Some of the creative teaching techniques like simulations, games, and role playing

are viable alternatives for learning about and experiencing real-life situations.

1.3 STATEMENT OF THE PROBLEM

The present study proposed to investigate the effectiveness of creative teaching methods in teaching the social science subject of geography to children with hearing impairment.

1.4 AIMS & OBJECTIVES OF THE STUDY

The study proposed to achieve the following objectives:

- Identify appropriate creative techniques for teaching specific concepts in Grade V Geography curriculum of the Andhra Pradesh State Board of Education.

- Based on the selected concept and appropriate techniques, plan and develop appropriate methods and materials to carry out creative teaching process.

- Carry out an experiment with children with hearing impairment studying in Grade V in a special school in Andhra Pradesh in order to find out the effectiveness of the developed creative teaching methods and materials.

- Investigate the relationship between the grade appropriate language skills in the subjects and the improvement in their performances in social science (geography) effected by the creative teaching techniques.

- Investigate whether there are differences between the performances of male and female subjects in the experiment.

1.5 RESEARCH DESIGN & HYPOTHESES

In the process of investigating the effectiveness of selected creative teaching methods and materials, an experimental research design involving experimental and control group was employed. And the study was carried out with the following hypotheses:

- There will be significant improvement in the post experimental performance of the experimental group following intervention with creative teaching techniques, in comparison to the control group

- The mean pre- to post-test improvement of the experimental group will be significantly better than the control group in terms of development of

  (i) Knowledge of the selected concepts

  (ii) Understanding of the selected concepts

  (iii)   Application of the learnt concepts

  (iv)   Practical skills related to the learnt concepts

- There will be significant positive relationship between the grade appropriate language skill development of the experimental group subjects and the improvement in their performances in social science (geography) effected by the creative teaching techniques.

- There will be significant differences between gain made by male and female subjects of the experimental group following the creative teaching exposure.

Chapter II

REVIEW OF

LITERATURE

CHAPTER II

REVIEW OF LITERATURE

This chapter outlines background theoretical information, as well as empirical researches with relevance to social science learning in children with special needs, especially hearing impairment and use of creative teaching techniques in the field of education.

2.1 SOCIAL SCIENCE LEARNING IN CHILDREN WITH SPECIAL NEEDS LIKE HEARING IMPAIRMENT

Research describing the performance of special needs children in the curricular subject of social science is limited when compared to the research on student performance in the basic skill areas (Kinder and Bursuck, 1991; Scruggs & Mastropieri, 1993). Proficiency in social science is necessary for all children, becausse of two reasons. One, pass in social science is a condition of high school graduation, and the other, a student's general foundation of information would not be complete without some knowledge of history, civic responsibility, and geographical skills, facts, and concepts. General educators are usually responsible for the delivery of social science instruction in inclusive educational set-ups (Schultz, Carpenter, and Turnbull, 1991). In special schools for children with hearing impairment, special educators cater to the needs of children with hearing impairment. However, research seems to suggest that the social

science instruction currently conducted in both general as well as special classroom environments is not meeting the needs of students with special needs (Donahoe and Zigmond, 1990; Kinder and Bursuck, 1991; Ravitch and Finn, 1987).

Ravitch and Finn (1987), in their analysis of the performance of high school students in general education on the first *National Assessment for Educational progress (NAPE)* of American history, noted that the average student answered correctly only 54.5% of the items attempted. These authors express grave concern that students currently in high school lack even a basic knowledge of American history. Donahoe and Zigmond (1990) analysed the academic performance of urban, secondary students with special needs who were placed into the three general educational classes; science, health, and social science. Results indicated that 51% of the subjects failed in social science. Consequent to further analysis of the students, final grades showed that, in addition to the 51% who failed in social science, another 28% earned a grade of 'D' (60-69% of the total number of points), indicating that 79% of the sample had below average grade in social science. The data raise doubts about the amount of learning that may have been occurring when students with special needs attended mainstream academic courses. Considering the large number of student with special needs who earn below average grades in social science, it appears that current instructional practices for secondary level

students with mild and moderate disabilities in general education classes do not enhance student performance. Informal observations have revealed that the situation is not any better in the special school learning environments. This implies that there is an imminent need for social science educators in special and mainstream set-ups to adopt innovative and creative approaches to teach social science to learners with hearing impairment and other special needs so that the curricular concepts and instructional methods are meaningful and accessible to them (Sale, 2004).

2.1.1. Need for Social Science Learning in Children with Hearing Impairment

Among other special needs children, those with hearing impairment have specific difficulties in learning social science. First of all, there is no consensus about how is social science relevant to children with hearing impairment. Ross (1997) noted that some scholars believe that the purpose is citizenship education, which is 'the preparation of young people so that they possess the knowledge, skills, and values necessary for active participation in society'. This is agreeable as it is necessary to teach deaf students about values, social behaviours, social issues, and how their individual behaviour contributes to the growth of a society. These students need to gain a picture of their role in society and how this role comes to be. They should be able to read the newspaper, interact with friends, and watch television knowing what's right and what's wrong.

Others argue that the purpose of social science is to emphasize cultural transmission, especially with respect to the dominant society (Stanley & Nelson, 1994). This too is a valid position that abets stability and common standards of thought and behaviour in the society (Ross, 1997). However, more and more schools are emphasizing the need to teach students to be analytical in their thinking and to question and critique standards views accepted by the dominant society (Ross1997). Within this frame work, or perhaps as an adjunct to the critical analysis of cultures, comes the call for school to take a multicultural approach, teaching students to respect difference in people (Banks, 1997; Delipt, 1995).

Teaching social science to deaf student is buttressed with the need to teach them how their place in society has been influenced by factors such as societal forces, legislations, and educational practices; factors that are unlikely to be described through the regular social science curriculum. There is much that deaf students need to learn about the world they live in. Deaf students have life experiences that are not always comparable to the others who are not deaf. Social science can be used to help deaf students use these experiences to gain a better understanding of the similarities and differences between deaf and hearing people. These greater awareness can be used to enhance the overall well–being of deaf

students. This is the job of a social science teacher. This is not a call for the removal of the regular social science curriculum from the education of the deaf student. It is a call for a greater infusion of content that is relevant to deaf students into the curriculum in order to provide them with a template upon which an understanding of other groups of people and social course in society can be built (Giangreco & Giangreco, 1976).

2.1.2. Difficulties in Social Science Learning for Children with Hearing Impairment

Indications among children in special schools for the hearing impairment show that social science apparently is disliked by both students and teachers. Somehow, social science often has the reputation of a 'fill in' subject. Usually all the other classes are scheduled first and then social sciences is passed around among different teachers. In many instances, a teacher is not only unprepared to teach subject, but is also disinterested in it (Giangreco & Giangreco, 1976).

The reading comprehension of hearing impaired students is limited. Scrutiny of achievement test scores shows a startling similarity between reading ability scores and social science scores. At the Iowa School for the Deaf, a 1965 research evinced the following correlations between reading and social science scores on the Stanford Achievement Test in relation to the Hiskey–Nebraska Test of Learning Aptitude:

Figure 2.1: Correlation between Reading and Social Science Scores in Learners with Hearing Impairment

Grades	Social Studies	Reading	
		Word Meaning	**Paragraph Meaning**
VII	0.049	0.044	0.085
IX & X	0.246	0.211	0.175
XI & XII	0.674	0.616	0.679

Giangreco & Giangreco (1976) opine that since social science is basically a reading subject. Social science becomes a difficult subject initially because of reading problems. Therefore, reading may repel learning in social science which is taught through the reading medium. The reading problem is compounded with the unfavourable attitude toward social science and the subject is virtually doomed before the class convenes. They (Giangreco & Giangreco, 1976) also draw reference to the learning theories of educational psychology that point out dramatically that the circumstances listed above can only lead to failure.

2.1.3. Need for Reinventing Social Science Instruction for Children with Hearing Impairment

Recognizing the problems in social science learning in children with hearing impairment, the challenge becomes one of in-depth study beyond learning through reading. Giangreco & Giangreco (1976) express that decisions must be made concerning educational objectives in social science

based on previous experience and aided by consideration of several kinds of data. Teachers should get as much data as they can about the students. They should know the students' present level of development, their needs, interests, problems which might be encountered and what opportunities they are likely to have for service and self realization. Teachers and students both should understand important values and must consider man's proper relation to society and to his fellow beings. They (Giangreco & Giangreco, 1976) also state that every teacher must understand how educational objectives are related a psychology of learning. And that teachers should effectively employ the 2 critical theories of learning, namely, of *motivation* and *transferring* in enabling children with hearing impairment for effective social science learning.

The key to reaching the instructional goals rests in the hands of the teacher and the teacher's ability to be creative as the teacher makes the work meaningful to each individual student. The teacher must adapt the material at hand to the student involved. For achievement of goals, the teacher must be willing to accept the challenge of assessing each student as an individual entity and determining the student's learning techniques. The teacher must be willing to be uniquely creative in the presentation of materials to be learnt so that the student will proceed toward the objective goals. It is possible to overstress the use of individual media and personal creative innovations as primary teaching aids. Social sciences classes

should be so interesting that the subject becomes a life long interest. To do this requires the use of concepts similar to pestalozzian philosophy. There must be a natural seizing of the fleeting sparks of curiosity. There must be an awakening of feeling toward the subject. The student must be fed knowledge in tune with his speed and unfolding plan of life (Giangreco & Giangreco, 1976). In brief, the social science teacher has to be *creative* to breathe life into the subject and the learner.

2.2 CREATIVE TEACHING

In practice 'employing creative and innovative teaching' has a wide ranging philosophical thrust that cannot be exactly defined. It applies to conceptions of teaching quality in general. Like for instance, Tuckman (1995) pointed out that defining or describing the 'competent' teacher is neither an easy nor an obvious task. Similarly Ornstein (1995), argues, that only few facts concerning teacher effectiveness have been established.

Creative teaching is analogous to *creativity* in any domain as it inevitably involves, combining existing knowledge in some new form to get a useful result. As Amabile (1996) suggests, "A product or response will be judged creative to the extent to that (a) it is both a novel and appropriate, useful, correct or valuable response to the task at hand, and (b) the task is heuristic rather than algorithmic. Teaching is certainly heuristic and such 'products' or 'responses', in the context of teaching, are

anything that contributes to student learning in a positive way. Therefore, Sale (2004) offers a simple operational definition of creative teaching as, a process that occurs when a teacher combines existing knowledge in some novel form to get useful results in terms of facilitating student learning. This may be either planned before the act of teaching, or invented as a response to the demands of the learning situation.

Creative teaching is anything that the teacher does which appeals to the creative side of pupils' brains. Researches (Sale, 2004; Spradley, 1980) have proved that learning is better when the students' minds are 'actively noticing'. The hub of all your brain's activity is the *Reticular Activating System* or RAS for short. It is the filter for all of internal thoughts and for all the external information that comes through senses. It's the bit of brain that decides what one will and won't be conscious of. It tends to give priority to things that are new or surprising, and enables the mind to focus on things one finds relevant or interesting.

One way to ensure a pupil's RAS doesn't filter the teacher and their lessons out is to tap into the different areas of their brains. The different sections of the brain are responsible for different tasks, and broadly speaking, that the brain operates in two halves; a creative half and a logical half. However, creativity is no good without order, and logic is not productive without an imaginative spark; so the two halves need to form

neural connections between each other to operate effectively and understand things fully. Tasks that use both sides of the brain stimulate neural connections and therefore tend to grab students' attention. Memory tends to also work best when the mind is engaged with the topic and the tasks. Creative teaching is one of the many ways to tap into the left-right mix. Creative approaches in instruction are those that adequately cater to preferred learning styles and multiple intelligences in the learners which also tap into the left-right brain mix (Starbuck, 2006).

2.2.1. Constitution of Creative Teaching

Research sheds some interesting light on differing conceptions of teaching as 'art', 'craft' or 'science' (Eisner, 1995). The findings are that no science of teaching exists, or can exist, that will be so prescriptive as to make teaching routine. The best that we can hope for, and is substantial, is to have better tools from science with which teachers can use their heads.

According to Eisner (1995), artistry in teaching represents the apotheosis of educational performance and rather than try to diminish or replace it with rule-governed prescriptions, we ought to offer it a seat of honour. Creative teaching is science, art and craft combined; dynamic and open to ever more creative capability and competence. Creative competence is a process and creative teaching is a regulatory ideal but, of course, unachievable as a terminal goal. Indeed, this is no different from

creativity, or excellence in any field of human activity and it's what makes teaching such a challenging endeavour.

However, research (Berliner, 1987) does go some way to demystify creative teaching and provide a practical model for understanding its essential syntax. It has been long recognized that expertise in any field, and teaching is no exception, involves experience. However, we fail to ask the question of what constitutes experience and what is its impact on learning and performance? Similarly, why is it that some people, who have many years of experience, still display limited competence, whereas relative newcomers achieve good competence in a comparatively short time? The conclusion of Berliner (1987) offers insight into such questions. He states that experience will probably only instruct those who have the motivation to excel in what they do and the metacognitive skills to learn from their experience. That is, it implies that individuals with motivation to learn and in possession of a set of strategies for learning from experience are literally transformed by their experience.

The motivation to be creative is within the control of individual teachers as they make sense of their personal identities and manage their professional practices. Ultimately, teachers choose their professional orientation, based on their values and beliefs.

2.2.2. Process of Creative Teaching

According to Sale (2004), the resources that could be used by teachers in the process of creative teaching is exponential in nature, however, it could be categorised in terms of the following six broad categories, namely, '*Presentation* style' (e.g., words, tone, body language – as well as observation and listening) to provide clarity, meaning and influence student attention, beliefs and psychological states; '*Examples*' used to illustrate facts, concepts, principles, procedures; '*Activities*' provided to integrate, apply and consolidate learning; '*Stories*' told to provide context, understanding and emotional anchors; '*Humour*' used to achieve rapport and provide novelty; and '*Audio-visual/IT Material*' used to engage the full range of sensory modalities.

Creative teaching emerges in two main, though often related ways. Firstly, it may originate in the actual lesson planning process. The teacher in preparing a lesson combines possibilities and comes up with a creative strategy using certain resources (e.g, activity, example, story, etc). In many instances creative teaching could also result from what could be stated as '*situated invention*'. As teaching is a dynamic human encounter in which much of the student response cannot be predicted in advance, teachers have to think on their feet, reframe what they are doing and deal with the perceived emerging reality. Inevitably, in this situation, teachers draw upon their existing professional knowledge, but in doing so often

improvise to the demands of the situation and do something different. Sometimes (but not always) this produces a desirable result. At that point in time, individual teachers have been creative. That is '*situated invention*', which is in many ways analogous to Schon's (1987) notion of *artistry*, which he defines as the kinds of competence practitioners sometimes display in unique, uncertain and conflicted situations of practice.

Furthermore, the new learning, resulting from the creative act, is now a resource for the teacher to use at some future time – it becomes part of his/her personal stock of professional knowledge. This iterative process moves the teacher towards the elusive goal of expertise or what Eisner (1985) refers to as '*connoisseurship*'.

It is interesting to note, though hardly surprising, that creative teachers, in seeking to get the results identified earlier, are consciously or tacitly building their resource capabilities, making a myriad of connections between knowledge bases and trying out new strategies. Such teachers are constantly on the lookout for new resource possibilities and are able to reframe quickly. From this, as in any area of professional activity, there develops a fluidity and consistency in the desired behaviour (in this case, creative teaching); which may be described as **creative competence**.

2.2.3. Types of Creative Teaching Techniques

The techniques that could be utilised in creative teaching are innumerable. However, several researches focus on 3 major techniques, namely simulation, interaction and play way teaching, that will be useful in social science instruction (Manorom & Pollock, 2006).

Simulation & Role Plays: Simulations and role plays are useful teaching strategies for illustrating a complex and changing situation. They could be described as simplified representations of complex situations and contexts. In a '*simulation*', the learner acts, and the simulation (that is the replication of an actual setting made of materials) reacts, the learner learns from this feedback. Example of use of simulation in social science instruction could be mountain model of made of mud and covered with crushed ice left under Sun to demonstrate the melting of ice glaciers to form rivers for *geography*. On the other hand '*role play*' is a situation, where the learners act out the complex situation in a simplified form through interactions among them like mock elections in *civics* (Manorom & Pollock, 2006).

There are two different kinds of role play that could be utilised in teaching social science. One kind involves having students act as if they were components of a physical process in the environment. The other kind of role play involves an ethical issue. Students act as humans in a situation where a decision must be made. Different students are given

brief descriptions of who they are and maybe a description of their feelings about the issue. Then the students act out their roles and make a decision about the issue (Hirsch & Lloyd, 2005).

Whatever is the type of simulation or role play, according to Manorom and Pollock (2006), practical application of these techniques, and their use should involve systematic phases so that the learner gains the maximum learning. Practical implementation of these techniques should involve at least 3 essential phases. The activities should start with '*Briefing*' phase where the learners are explained what the simulation / role play is about and for. The second is the '*Implementation / Interaction*' phase where the actual activity is carried out. The third phase is '*Debriefing*' where the learners are helped to formulate their inferences in relation to the learning objectives through constructive discussions (Manorom & Pollock, 2006).

Play-Way Teaching: Employment of play way methods in teaching is recommended more for young learners. Osanyin in 2007 carried out an experiment to identify categories of play and their value in children's learning. The study was designed to examine whether the use of a type of play, 'socio-dramatic play' will facilitate skill learning in pre-school children. Its purpose was to determine the instructional value of play in early childhood learning. For the study, 10 early childhood educational

institutions with a total of 60 children were involved. The design involved a pre-test, three-week treatment and a post-test. The theme centred on social problems and roles of family members. The results implied that the opportunity offered by the play environment made children to readily identify with materials and the activities generated thereby. They spontaneously participated in pre-academic, as well as co-curricular skill training (Osanyin, 2007). The implications of this study may be applicable to older children and those with special needs also.

Others: At present, technological developments like also play a very important role promoting creative teaching through internet (McNanus, 2000).

2.3 IMPLICATIONS OF CREATIVE TEACHING

Very limited information was available about creative teaching experiments in the field of social science teaching, or special needs children. Hence, this section has borrowed from experiments with creative teaching techniques from other fields of knowledge like nursing and management education.

2.3.1. Evaluation of Creative Teaching Outcomes

Researches have attempted to gauge the desired outcomes of the creative teaching process through a method focused on identifying and making the *'Results, Resources and Strategies'* (RRS) used by practising teachers in everyday teaching activities. 'Results' refer to the desired outcomes sought in the teaching-learning situation; 'Resources' refer to the things that can be utilised in the teaching-learning process; and 'Strategies' refer to the orchestrated use of the resources to get the desired teaching-learning result. Around the world and across ages, such analyses have been carried out to decide the success of the creative teaching approach using a variety of techniques like video-recording, exploring lesson structures, structured questioning on the lesson procedures, and indwelling on the emerging developments in the classroom procedures among others (Bandler & Grinder, 1990; Moustakas, 1990; Dilts, et al., 1980; Glaser & Strauss, 1967).

2.3.2. Influence of Creative Teaching in the Learning Process

Irrespective of the varied approaches to gauge the creative teaching approach, there have predominant indicators that the approach has been effective in

- Getting student attention when desired
- Creating good teacher-student and peer -student rapport

- Imbuing positive beliefs in students

- Improving psychological states in students as well as teachers

- Making learning relevant and meaningful to the students (Sale, 2004).

Researches have also investigated into how these above-mentioned outcomes are conducive to the teaching-learning process in the classrooms:

- ***Getting attention when desired:*** Getting good attention from students when desired is crucial for the quality of student learning, if we assume that teachers have relevant offerings for the attention rendered. As Sylwester (1998) points out, it is biologically impossible to learn anything that one is not paying attention to; the attention mechanism drives the whole learning and memory process. Similarly, Csikszentmihalyi (1990) has argued that the shape and content of life depends on how attention has been used, and that attention is the most important tool in the task of improving the quality of experience.

- ***Creating good rapport:*** According to the world famous success coach Anthony Robbins (2001), "Rapport is the ultimate tool for producing results with other people". In the classroom context, this helps the students to be able to quickly adapt to a state of attention that was required by the teacher. This is consistent with the work of Glasser

(1988) who asserts that no class can ever be satisfying unless both teachers and students find it so.

- *Imbuing positive beliefs:* According to Sale (2004) beliefs act as major neurological filters that determine how we perceive external reality. Furthermore, our perceptions of reality will determine both our thinking and behaviour. However, as Adler (1996) points out that we forget that beliefs are no more than perceptions, usually with a limited durability, yet we act as though they were concrete realities. Much of student success or failure can be accredited to the beliefs held by both teachers and learners, as documented by a long line of research going back to Rosenthal and Jacobson's (1968) pioneering research on the impact of teacher expectations on student performance. Ornstein & Behar (1995), from research, concluded that the most effective teachers endow their students with a "you can do it" attitude, with good feelings about themselves, which are indirectly and eventually related to cognitive achievement.

- *Improving psychological states:* At the psychological level our state is how we think, feel and perceive at any given moment. If students are in poor states for learning (e.g., irritable, bored, psychologically elsewhere; teaching is likely to be arduous, to say the least. It is important, therefore, to help students get into more positive states for

learning (e.g., curiousity, challenge, low to moderate anxiety; Csikszentmihalyi, (1990). Once desirable states are elicited, effective learning becomes a much more likely result from the efforts of teachers (Jenson, 1997). Jensen (1996), drawing from brain research, points out that learners in positive, joyful environments are likely to experience better learning, memory and feelings of self-esteem.

▪ *Making learning relevant and meaningful:* Similarly, to quote Jensen (1997) again. The more we make school learning like real life, the more the brain, with its rich capabilities, will sort it out.

Experiments have also been carried out to find out the outcomes of specific creative teaching techniques. Some of which have been presented in the following sections.

2.3.3. Outcomes of Using Simulations in Teaching Process

Experiments of Brierley, Devonshire and Hillman (2002) have reported that simulation techniques help in developing functional knowledge, which is a combination of propositional knowledge (knowing about academic knowledge base), procedural knowledge (having the skills) and conditional knowledge (knowing the circumstance in which to use the skills). They further state that the technique creates a stimulating

environment that simulates reality and enables the students to intensify their understanding of the situation or event.

Hirsch and Lloyd (2005) argue that simulation consists of the key elements of experiential learning. They define it as a process whereby knowledge is created through the transformation of experience. According to them, the simulation technique allows students to apply concepts and problems that have been introduced through lectures and readings to a situation that reflects reality. It is a hands-on approach to learning as opposed to more abstract forms of learning such as lectures or essay writing (Hirsch and Lloyd, 2005).

2.3.4. Outcomes of Using Role Play in Teaching Process

According to Norman (2004) use of role play in the classroom helps students learn with different personalities, beliefs, value systems, abilities and background experiences. As a result students develop greater appreciation of the range of perspectives held on a particular issue. Several other researchers have elicited the positive influence of role play in learning.

Researchers Gourgey, Bosseau, and Delgado (1985) did a study with lower socioeconomic Black and Hispanic students in elementary school. After a six month improvisational role play project, gains were

observed in vocabulary and reading comprehension. Survey results also suggested that students also showed improvement in attitude areas including trust, self-acceptance, acceptance of others, and empowerment . In another project by researchers Shacker, Juliebo, and Parker (1993), third graders were successfully immersed in a French language acquisition program with social science through role play.

Interestingly, many of the theories presented by child researchers have supported child development through drama without ascribing that specific title of role play to it. For example, at the most basic level interventionists and counsellors have used role-playing and role-reversal for years as a means of mediation for children trying to understand aspects of a conflict, yet this has never been applied on a larger scale in the mainstream classroom. This simple solution is left as a last resort because teachers are unaware of its value in solving educational problems (Saldaña, 1995).

2.3.5. Outcomes of Using Play in Teaching Process

Brown and Pleydell (1999) write that for children play time are periods of heightened excitement that provide the perfect opportunity for the astute educator or parent to drop in extra information.   Formalized play in classroom or play way of teaching is play activity that focuses on a specific objective and directed by the teacher.   Play way teaching

implemented in the proper sense, is an extra dimension to teaching and not an alternative. It should allow the teacher to ask questions, shape the lesson, check and model student understanding.

Among childhood educators, there is a growing consensus that young children best through 2 experiences, play and interaction with the environment (Saldaña, 1995). Brown and Pleydell (1999) observe that young children's imaginations are unlimited, and engaging this imagination allows the educator to turn the entire classroom into another place and time. And to add to it, the information dropped in effectively in the process of play is well remembered than those handed out through a lecture or handout.

2.3.6. Outcomes of Creative Teaching in Other Fields

Parfitt (2006) carried out an experiment with the purpose to find out if creative teaching methods would prove effective in the field of nursing science. In the experiment, didactic teaching methods were exchanged for a more creative approach without alteration of the course structure. A quasi experimental method was used, with four introductory courses of 20 nursing students at two separate district schools as the sample, two groups acting as the control groups and two as the experimental groups. The teaching sessions introduced medical problems associated with poor oxygenation, particularly those consequent to heart

disease. The teaching was supported by appropriate care planning. Three distinct areas were identified; fact learning, e.g. anatomy and physiology, problem identifications and planning for nursing, intervention and skill learning. Students in the experimental groups were given work sheets and facilities for self learning whilst those in the control groups continued with a traditional lecture/demonstration format. The results of the experiment were evaluated by testing all four groups using multiple choice objective tests, essays, problem solving and nursing intervention exercises and practical assessments. The findings showed that the experimental groups did no better in the multiple choice objective tests or in the essays than the control groups, but they did do significantly better in the problem identification and planning for nursing intervention exercise. In the assessment of practical skills there was no difference between the groups in skill performance but the experimental groups were able to apply the theory significantly better than the control groups (Parfitt, 2006).

Sale in 2004 carried out a creative teaching experiment involving 24 lecturing staff at a Singapore Polytechnic, and observed that creative teaching which skilfully in combined resources and strategies to take the learning experience to sensory level of the students were successful in bringing about positive learning outcomes in learners.

McManus (2000) has carried out experiments on creative teaching with internet technology, and observed that the advantages of using the technology is its motivational power; access to different types of resources; facilitation of collaborative learning; control over learning; interactivity; ease of publication and updatability of information. Whereas on the other hand, the difficulties on using it on a regular basis as an accessory process to creative teaching was differential access among students, and cost involved (especially in the developing countries).

2.4 OTHER FACTORS INFLUENCING ACADEMIC LEARNING IN CHILDREN WITH SPECIAL NEEDS

Apart from the teaching approaches and methods, there are other innate characteristics in the learners which also influence the learning ability in learners. In students with special needs, learner characteristics other than the nature and severity of their disability like age, gender and socio-economic background among others have been proved to influence their learning ability.

2.4.1. Influence of Gender

Akinpelu (1998) in her study with 566 children with hearing impairment (362 males, 204 females) in Nigeria carried out a comparative survey on self-concept and academic achievement among male and female children with hearing impairment. She came out with the findings that

girl children in comparison to boys with hearing impairment were not only found to have inferior self-concept, but also lower overall academic performances.

2.4.2. Influence of Age of Intervention

There were several studies which endorsed that earlier age of identification and intervention leads to better language and academic learning (Marschark, 2001; Yathiraj, 1994). However, there are also other studies that demonstrated that age of intervention did not significantly influence the learning ability in children (Pittman, et al., 2005)

2.4.3. Influence of Socio-economic Conditions

Reports like that of Mohanlal (2002) have indicated that in developing countries like India social and economic backgrounds are crucial factors which could critically influence the language learning and academic success in children with hearing impairment.

The literature reviewed threw light on the practical difficulties in teaching social science to children with hearing impairment. Apart from the hearing impairment there are also other learner characteristics that interfere with the learning ability of children with hearing impairment. However, researchers (Briggle, 2005; Norman, 2004; Gourgey, Bosseau, and Delgado,

1985) have ascertained that innovated learning approaches and classroom

environments go a long way in helping to overcome those challenges.

Chapter III

METHOD

CHAPTER III

METHOD

The purpose of this experimental study was to determine the effectiveness of creative teaching techniques in influencing better social science learning in children with hearing impairment. This chapter describes the subjects, materials and methods involved in the process of realising this aim.

3.1 SUBJECTS

Students from Grade V in a Special School for Hearing Impairment under the Andhra Pradesh State Board of Education were selected for the study. The inclusion and exclusion criteria for selecting the subjects were as follows:

Table 3.1: Inclusion and Exclusion Criteria for Selecting Subjects for the Study

Inclusion Criteria	Exclusion Criteria
Hearing impairment of 60 dB and above in the better ear	Children with any other associated disabilities
Age between 8 and 12 years	Children who do not pass learning test for language skills at grade IV level.
Medium of instruction Telugu. And	
Studying in standard V in special, or inclusive Schools	
Training being provided through aural-oral, or combined mode.	

The total number of 16 subjects who were selected following the inclusion and the exclusion criteria were randomly assigned to control and experimental groups. The details of the distribution of the subjects between the control and experimental groups are as follows:

Figure 3.1: Distribution of Subjects between Control & Experimental Groups

☐ Control Group - Males
☒ Control Group - Females
▲ Experimental Group - Males
☒ Experimental Group - Females
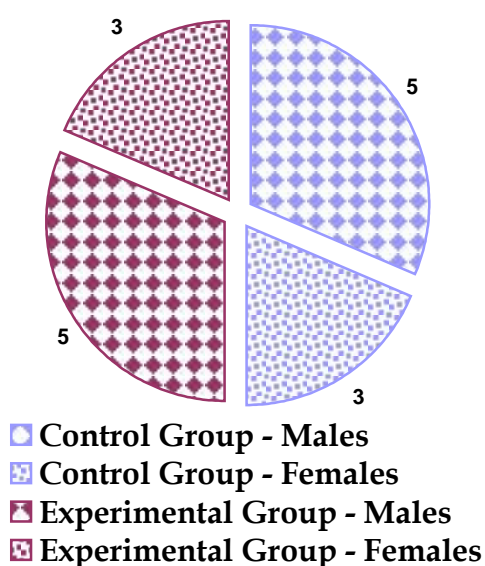
All the subjects were using total communication including aural-oral combined with manual signs and came from special school setups. All children were reported to have severe to profound hearing loss, and were using body-worn hearing aids.

3.2 MATERIALS

The tools used in the research included 2 tests for assessing the subjects; and a package of 7 creative teaching techniques for teaching the selected social science concepts.

3.2.1 Tests for Evaluation

The study included investigator-made assessment tools which are as follows:

- Test to assess language skills of the subjects that they were expected to have mastered in the previous grade (Grade IV). The test items were constructed so as to ensure knowledge and skills to use necessary vocabulary, as well as essential sentence structures in the language.

- Test to assess the subjects' knowledge, understanding, application and skills in selected concepts (Solar system, movements of Earth & Formation of Day & Night) in the curricular subject of Geography. This test in turn included:

  ○ An *objective-type test* assessing knowledge and understanding of the subjects, accounting for 80% of score

  ○ An *activity-based test* for assessing related development of practical application skills in subjects, accounting for 20% of the score.

As a prerequisite for assessing the academic learning in social science, an investigator-made test in language skills was employed to ensure essential basic language skills which are necessary for learning

other curricular subjects. The test for language skills was developed based on the Grade IV language curricula that the subjects were expected to have mastered. Only subjects who scored 50% and above in the test were included in the study.

To investigate the knowledge and understanding of selected concepts in the curricular area of geography, an objective type test was prepared by the investigator. This test included equal number of fill in the blanks, true or false, multiple choice and matching items. The test included a total of 20 items with each item carrying 1 mark. Each correct response was scored 1 and wrong response 0. (Copy of the test items in   Appendix – A).

To acquire information about the practical application skills in the selected concepts, the investigator had developed an activity-based test of 5 items, and each carrying a score of 1 mark. The responses were scored with 1 mark for correct, independent responses; ½ mark for partially correct and/or prompted responses; and 0 for incorrect and no responses. (Copy of the test materials in Appendix – B)

3.2.2   Materials for Intervention

The investigator had selected the concepts of the Sun and the Earth and other planets in the solar system, the 2 different types of

movements of the Earth, and the formation of day and night in the Earth. In order to teach these concepts, after extensive review of literature, the investigator identified 3 creative teaching techniques, namely simulation, role play and play way methods that were useful in teaching social science concepts, namely, simulation, role play and play way teaching. Following that, he developed a battery of creative teaching methods and materials to teach the concepts (details in Appendix – D).

3.3 PROCEDURE

The following steps were followed in carrying out the study:

3.3.1 Development of Materials for Intervention

Step 1. Selection of Social Science (Geography) Concepts for Intervention: The concepts for creative teaching intervention were selected by the investigator after thorough browsing of the social science textbooks of the primary grades of the Andhra Pradesh State Board of Education.

Step 2. Identification of Appropriate Creative Teaching Techniques: Selection of the concepts was followed by review of related literature to identify appropriate creative teaching techniques that could be employed in teaching them.

Step 3. Development of Methods and Materials for Intervention through Creative Teaching: The next step involved developing specific teaching–learning methods and materials to teaching the selected concepts employing the creative teaching techniques that were identified as suitable for the selected concepts.

3.3.2 Development of the Assessment Tools

Step 1. Development of Test for Basic Language Skills: For the purpose of assessing prospective subjects' basic language skills the investigator developed a test based on the IV Grade Telugu curriculum of the Andhra Pradesh State Board of Education.

Step 2. Development of Test for Assessment in Selected Social Science Concepts: An objective-type written test was constructed in order to assess the subjects' pre and post experimental knowledge and understanding in the selected concepts. And an activity–based, practical test was designed to test relevant skill development.

Step 3. Validation of the Tools Developed: The assessment tools were validated by 5 special educators (2 for the English version & 3 for the Telugu version). Items that had 100% agreement among the validators were selected for the study. Certain changes were

incorporated in the test items based on the feedback of the validators.

3.3.3 Selection of Subjects for The Study

Following the inclusion and exclusion criteria, the 16 subjects for the study were identified in a special school for hearing impairment and necessary permission / consent were sought from the administrators and caregivers for carrying out the study. The selection procedure also involved a preliminary screening for necessary basic language skills.

3.3.4 Procedure for Collection of Data

Step1. Pre-experimental Assessment of Knowledge and Skills in the Selected Social Science Concepts: All the selected 16 subjects were administered the objective-type test and practical test for assessing the pre-experimental knowledge and skills.

- The *objective-type test* was administered to all the subjects in a group in the calm environs of a classroom. The administration included distribution of printed question sheets, which students were to fill in and return within a maximum of 45 minutes.

- The *activity-based practical test* was carried out in a calm secluded environment in the school premises on a one-to-one basis. There was no time limit for the practical test.

Step 2. Post-Experimental Assessment of Knowledge and Skills in the   Selected Social Science Concepts: Following the intervention using creative teaching techniques, all the subjects of both the control and experimental groups were again administered the objective-type and practical test following the same procedures.

3.3.5   Intervention Using Creative Teaching

Step   1. Forming   of Control &   Experimental Groups: Following the pre-experimental test the subjects were assigned randomly to the control and experimental groups, which were of equal strength with 8 members each. Stratified random sampling was used to have equal distribution of male and female subjects in both the groups (3 girls and 5 boys).

Step   2. Intervention: The experimental group was exposed to the creative teaching methods developed by the investigator over a period of 6 days apart from the 2 days for pre- and post-experimental testing. The intervention was carried through 1 session of 45 minutes each per day.

Step   3. Both the experimental and control groups were at the same time exposed to the traditional method of teaching (using textbook,

charts, flashcards and blackboard) in the same concept as part of their classroom routine.

Step 4. After the completion of the experiment and post-experimental test, the control group was also exposed to the creative teaching method, so that they were not deprived of the benefits of the creative teaching process.

3.4 ANALYSIS

The effectiveness of the creative teaching intervention was gauged by using analysis of variance to compare between the pre- and post-experimental differences of the control and experimental groups. Similar measures were also employed to find out the influence of the creative teaching methods on development of knowledge, understanding and skills in the subjects.

Chapter IV

RESULTS &

DISCUSSION

CHAPTER IV

RESULTS & DISCUSSIONS

The present study was carried out with the purpose investigating the influence of creative teaching techniques in improving learning of social science (geography) concepts in children with hearing impairment. A pre test–post test experimental design was employed for the purpose. The performances of the subjects on the tests were converted to percentage scores for ease of analyses. The differences between the pre- & post-test scores were calculated to obtain the *Gain Scores* of the subjects of the randomly selected control and experimental groups. These *Gain Scores* were subjected to analysis of variance using the *Independent Sample t-Test*, to find out the difference in performance influenced by the use of creative teaching techniques. *Pearson r correlation* measure was also used to investigate the relationship between the subjects' performances in the tests for language skills and in the curricular area of social science for the purpose of analysing the relationship between language skills and receptability to creative teaching. Again *Independent Sample t-test* was employed to find out if there were any differences in the performance pattern of male and female subjects in the study.

The analyses were carried out with regards to acceptance of rejection of the following null hypothesis:

1. There will be no significant improvement in the post-test performance of the experimental group following intervention with creative teaching techniques, in comparison to the control group

2. The mean pre - to post-test improvement of the experimental group will not be significantly better than the control group in terms of development of

   (i)   Knowledge of the selected concepts

   (ii) Understanding of the selected concepts

   (iii) Application of the learnt concepts

   (iv) Practical skills related to the learnt concepts

3. There will be no significant positive relationship between the grade appropriate language skill development of the experimental group subjects and the improvement in their performances in social science (geography) effected by the creative teaching techniques.

4. There will be no significant differences between gain made by male and female subjects of the experimental group following the creative teaching exposure.

4.1 COMPARISON OF IMPROVEMENT IN PERFORMANCES OF EXPERIMENTAL AND CONTROL GROUPS (IN TERMS OF GAIN SCORES) FOLLOWING CREATIVE TEACHING

The *Gain Scores* of both the control and experimental groups were calculated by deducting the pre-test scores from the post-test scores of the

individual subjects.   Mean and standard deviation were calculated
separately for each of the groups.   The differences in terms of *gain scores*
between the control and experimental groups have been illustrated in
Figure 4.1.

Figure 4.1: Performance Patterns (in terms of *Gain Scores*) of Experimental and Control Groups
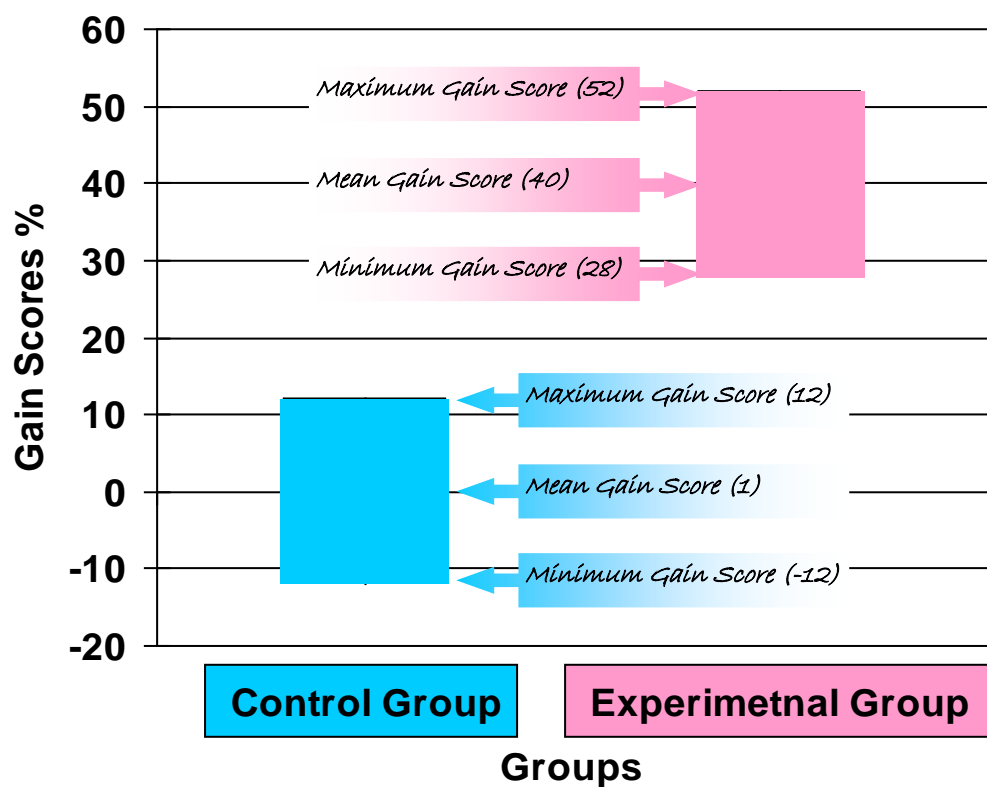
General overview of the gain scores of the control and experimental
group indicated better performances in the experimental group following
exposure to creative teaching techniques.   The statistical measure of
Independent-sample t test was employed to further investigate the
differences in the gain scores of the control and experimental groups.

Table 4.1: Comparison of Gain Scores in the Experimental and Control Groups

Details of Performance	Score	Experimental Group	Control Group	Mean Difference	*t*
Overall Performance	*mean*	40.00	1.00	39.00	*9.975****
	SD	7.09	8.49		

(* p < 0.05; ** p < 0.01; ***p < 0.001; No* difference is not statistically significant)

From the results provided in table 4.1, it is clearly evident that creative teaching techniques have brought about overall significant improvement in the academic performances in the subjects of the experimental group in curricular area of Geography. The mean difference in the gain score of the experimental and control groups is 39%. And this difference is statistically significant at 0.001 level. Even though not many studies have been reported of experimenting creative teaching techniques with children with special needs like hearing impairment, there are quite a few studies that have reported its positive impact with typically developing children.

Bandler & Grinder (1990) pointed out that employment of creative techniques makes learning relevant and meaningful to the children, thus bringing about overall improvement in their academic performances. Shacker, Juliebo and Parker (1993) through their experiment have specifically proved the effectiveness of creative teaching in social science for primary schoolers.

4.2 IMPACT OF THE CREATIVE TEACHING ON VARIOUS LEARNING OUTCOMES

Further in-depth analysis was carried out using the same statistical measure to find out the impact of the creative teaching techniques on various kinds of learning outcomes in the children like acquisition of knowledge, understanding and ability to apply learnt knowledge, as well as practical skill development relevant to the conceptual learning. The results of the analyses are presented in the following table.

Table 4.2: Impact of the Creative Teaching on Various Learning Outcomes

Details of Performance		Score	Experimental Group	Control Group	Mean Difference	*t*
Written Test [Objective-Type]	Knowledge	mean	37.50	- 4.17	41.67	*4.083****
		SD	14.77	24.80		
	Understanding	mean	23.61	4.17	19.45	*2.052*
		SD	23.34	13.20		
	Application	mean	25.00	2.50	22.50	*2.909**
		SD	14.14	16.69		
Practical Test [Activity-based]	Skill	mean	87.50	0.00	87.50	*13.507****
		SD	18.32	0.00		

(* $p < 0.05$; ** $p < 0.01$; ***$p < 0.001$; No* difference is not statistically significant)

The results in the above table indicate that creative teaching techniques were able to effect all round improvement in all areas of learning outcomes. However, the impact is more marked in some aspects of learning than others. Creative teaching techniques were able to bring about the most improvement in developing practical skills related to the concept (mean difference = 87.50; $p < 0.001$). This finding is adequately supported through earlier studies like that of Osanyin (2007), who reported that creative teaching techniques were useful in spontaneous skill

development in learners.   The gain in skill development is followed by the gain in knowledge (mean difference = 41.67; p < 0.001), and application of learnt knowledge (p < 0.05)   Gourgey, Bosseau and Delgado (1985) in their experiments with children from lower socio-economic groups have also proved the usefulness of creative teaching techniques in knowledge acquisition among children.   However it is found that the improvement in the area of understanding is less marked (mean difference = 19.45 with no statistical significance).   Another noticeable aspect in this set of results was that the relatively high standard deviation for the *gain scores* in the areas of understanding, which indicates un-uniform improvement made by the experimental group subjects in those areas.   The comparative gain performances of the experimental group children in the different learning outcomes has been illustrated in Figure 4.2.

Figure 4.2: Performances (*Gain Scores*) of Experimental in the Different Learning Outcomes
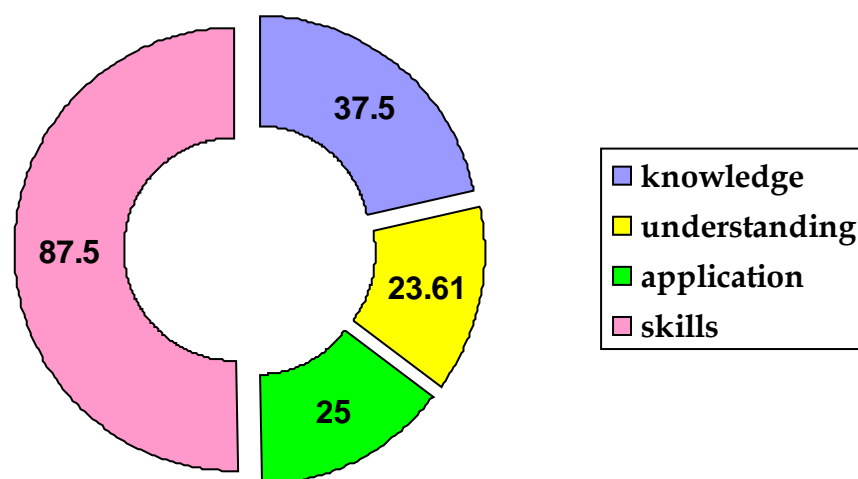
However, Creative teaching experiments with older students (from the profession of nursing) by Parfitt (2006) have reported that the advantages in understanding and application of learnt knowledge were, much better then acquisition of knowledge and skills.

4.3 RELATIONSHIP BETWEEN LANGUAGE ABILITIES AND IMPACT OF CREATIVE TEACHING IN SOCIAL SCIENCE

Analysis of correlation was carried out between the scores obtained by the subjects of the experimental group in the preliminary screening test for language and their gain scores, in order to verify whether better linguistic abilities influenced better learning through creative teaching. The analysis was carried out using the *Pearson r correlation* and the results are presented in the following table.

Table 4.3: Correlation between Language and Social Science Performances

Pearson Correlation	Performance in Language Test
Performance in Social Science (Geography) – Gain Score	0.34

(* p < 0.05; ** p < 0.01; ***p < 0.001; No* difference is not statistically significant)

Earlier researches (Harris & Moreno, 2006; Yathiraj, 1994) have proved that better language abilities influenced better academic learning. This study has reiterated that there is positive correlation between the language abilities of the children and the improvement they have gained in social science (geography) learning through creative teaching.

However, relationship was not statistically significant. This might have been because the creative teaching techniques used in this study focused more on hands-on learning resulting in practical knowledge with relatively less emphasis on the verbal learning unlike the traditional methods of instruction.

4.4 COMPARISON BETWEEN PERFORMANCES OF MALE AND FEMALE SUBJECTS OF THE EXPERIMENTAL AND CONTROL GROUPS

Several researches on disadvantaged groups of children have indicated that the girl children among these groups are doubly disadvantaged having poorer self concept, which in turn affects their academic learning. Such findings have been recurrently generated through studies including children from varied disadvantaged backgrounds like Black and Hispanic children (Borovetz, 1995); mentally retarded children (Meyers, 1976); physically handicapped children (Byran, 1974; Cafferston, 1977); sensory impaired children (McMakin, 1976); and at all levels of learning like, from the primary grade levels through college (McCandless & Trotter, 1973; Adeniran, 1985; Salawu, 1991).

As creative teaching is a new innovative endeavour, data was analysed to see how the children of different genders responded to the exercise. For this, the gain scores of the male and female subjects among the experimental groups were compared, using *Independent Sample t-Test*.

Table 4.4: Comparison of Gain Scores in the Male and Female Subjects

Details of Performance		Score	Female Subjects	Male Subjects	Mean Difference	*t*
Written Test [Objective-Type]	*Knowledge*	*mean*	44.44	33.33	11.11	*1.950*
		SD	19.24	11.78		
	Understanding	*mean*	33.33	17.78	15.55	*1.035*
		SD	33.33	16.85		
	Application	*mean*	20.00	28.00	- 8.00	*0.900*
		SD	20.00	10.95		
Practical Test [Activity-based]	*Skill*	*mean*	93.33	84.00	9.33	*0.750*
		SD	11.55	21.91		
Overall Performance		*mean*	45.33	36.80	8.53	*0.669*
		SD	6.11	5.93		

(* p < 0.05; ** p < 0.01; ***p < 0.001; No* difference is not statistically significant)

Results in Table 4.4 elicit the fact that even though there were no significant differences between the performance of boy and girl children with hearing impairment; girls have obtained better *gain scores* in almost all areas of learning out comes (like knowledge, understanding, and practical skill) except for application of learnt knowledge. These findings might imply that girls may be more meticulous in learning, but most often confine use of their knowledge and skills learnt within classroom. However, the better scores of the boys in applying the learnt knowledge might indicate their practical bent of mind and availability of more opportunities to experiment the same. Akinpelu (1998), in her comparative survey on self-concept and academic achievement among

male and female children with hearing impairment in Nigeria, reported that girl children with hearing impairment not only had inferior self-concept, but also lower overall academic performances.

The comparative (gain) performances of the male and female members of the experimental group for the different learning outcomes has been depicted in Figure 4.3.

Figure 4.4: Performances (*Gain Scores*) of Male and Female Children of the Experimental in the Different Learning Outcomes
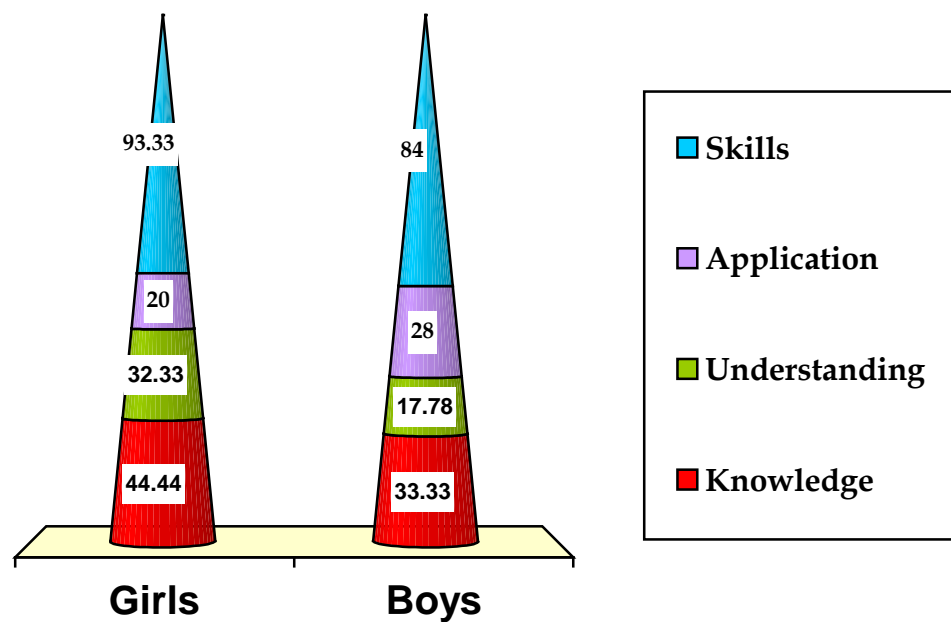
4.5 INFERENCES

At the end of the analyses and interpretation of data the investigator was able to make the following inferences:

1. The null hypothesis (1) was rejected. There was significant improvement in the post-test performances of the experimental group in comparison with the control group, following the intervention with creative teaching technique.

2. The null hypotheses (2 – i & iv) were rejected implying that there was significant improvement in post-experimental learning outcomes in the areas of acquisition of knowledge and relevant practical skills. However, null hypotheses (2 – ii & iii) were accepted indicating that the even though there was post-experimental improvement in the learning domains of understanding and application of learnt concepts, they were not statistically significant.

3. The null hypothesis (3) was accepted. There was no significant relationship between the experimental group subjects' grade appropriate language skill development and their ability gain from creative teaching exposure, even though the relationship was positive.

4. Null hypothesis (4) was accepted. There was no significant difference between post-experimental gains made by the boys and girls of the experimental groups. However, the girls had outdone the boys in most of the areas of learning like acquiring knowledge, understanding and practical skills, except for application of learnt knowledge.

Chapter V

SUMMARY &

CONCLUSIONS

CHAPTER V
SUMMARY AND CONCLUSIONS

Academic underachievement in children with hearing impairment is a trend that transcends regions and ages (Holt, Traxler & Allen 1997; French, 1987; Wolk & Zieziula, 1985; Wolk & Allen, 1984; Jensema, 1978; Trybus & Karchmer, 1977; Trybus & Jensema, 1976). The academic difficulty is seen to be more profound in certain subjects like social science, especially because the curriculum is loaded with facts and traditional methods instruction for these subjects are more verbalised in nature that they did not suit the special learning needs of children with hearing impairment (Idol, et al., 1991; Giangreco & Giangreco, 1976). The present study was undertaken to investigate the effectiveness of creative teaching techniques like stimulation, role play and play way teaching in influencing better learning for the social science subject of geography. An experimental research design, involving experimental and control groups, was adapted in carrying out the study. Following review of literature, the investigator had developed certain creative teaching methods and materials for instructing children with hearing impairment in selected geography concepts related to the solar system, different types of movements of the earth and their effects. He had developed comprehensive test materials including written and practical aspects, so as to test the influence of the creative teaching approach in all areas of learning outcomes like knowledge, understanding, application ability and practical

skill development. The gain scores of the control and experimental groups were computed following the experiment and subjected to appropriate statistical measures so that effect of creative teaching approach could be appraised exactly.

5.1   MAJOR FINDINGS OF THE STUDY

Following were the major findings of the study:

- The creative teaching techniques of simulation, role play and play-way teaching were overwhelmingly successful in influencing better learning in selected concepts in geography (about the solar system, different types of movements of the earth and their effects).

- The positive influence of the creative teaching experiment was more marked for learning outcomes like acquisition of knowledge and practical skills (at 0.001 level of significance) followed by improvement in ability for application of learnt knowledge (at 0.05 level of significant) and gain in understanding (statistically not significant, even through there was improvement).

- There was a positive relationship between the subjects' language abilities and their responsiveness to the creative teaching approach, however the relationship was not statistically significant.

- Following exposure to the creative teaching approach, female children had displayed more improvement than male children in areas like acquisition of knowledge, understanding and practical skills, while boys were better in application of the learnt knowledge. However, the differences were not statistically significant.

5.2   IMPLICATIONS

The outcome of this research might be helpful in

- Providing ready to use creative teaching ideas to special as well as mainstream educators for teaching geography concepts similar to the ones experimented in this study.

- Providing pointers to educators to develop creative teaching methods and materials on similar lines for concepts in other disciplines of social science and in other curricular subjects like mathematics and science.

- Motivating educators to take up classroom-based action research to study the effectiveness of creative teaching approach in practical use.

5.3   RECOMMENDATIONS

The following recommendations are made for future research in the area:

- In contrary to earlier research findings (Hirsch & Lloyd, 2005) that highlight meaningful learning as the major outcome of creative teaching, this study elicited relatively less improvement in the areas of understandings as compared to other outcomes of learning. In future, researches could be undertaken to find reasons there off, as well as means for improving meaningful learning.

- Research could be undertaken to evolve creative teaching methods and materials for other curricular subjects like mathematics, science and other areas of learning in social science.

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APPENDICES

PRE/POST EXPERIMENTAL EVALUATION FORMAT

Objective – Type   Written   Test

Name: -   School:-

Class: -   Date :-

Time: -   1 hour   Marks: - 25

I.   Fill in the blanks

1. Earth's movement on it's own axis is called as _____
2. Which planet receives less heat from the Sun? _____
3. Which part of the day do clothes get dried quickly? _____
4. Which planet is the biggest planet in the solar system? _____
5. How big is the earth in comparison to other planets in the solar system? _____

II.   Choose the correct answer.

6. From which planet can you reach the sun in the shortest time?[   ]
   (a) Mars   (b) Jupiter   (c) Venus   (d) Mercury

7. Which planet has more number of satellites?   [   ]
   (a) Pluto   (b) Saturn   (c) Mars   (d) Jupiter

8. A year constituted of 365 ¼ days, as it is the time taken for   [   ]
   (a) 1 rotation   (b) 4 seasons   (c) 12 months   (d) 1 revolution

9. How many planets are there in the solar system?   [   ]
   (a) 7   (b) 12   (c)   9   (d) 10

10. Sun gives heat and light, as it is   [   ]
    (a) rotating   (b) very big   (c) big ball of fire (d) in the centre

III. Mark the following statement as true (T) /False (F)

11. Orbit around the sun is circular   [   ]
12. Planets are bright as they have light of their own   [   ]
13. Sun rises in the East, as earth rotates from East to West   [   ]
14. If earth stops rotating, we will fall off from the earth   [   ]
15. Sun's light reaches the earth in 8 minutes   [   ]

IV. Match items in column A with one or more items in column B

| A	B
16. Satellite of the earth	(a) orbit
17. Woollen clothes	(b) moon
18. Revolution of earth	(c) East
19. Part of the year with the lowest temperature	(d) winter
20. Earth's route around the sun	(e) seasons

(Items 17 & 19 in column A have mutual choice in item (d) of column B; while item (c) in column B is spare)
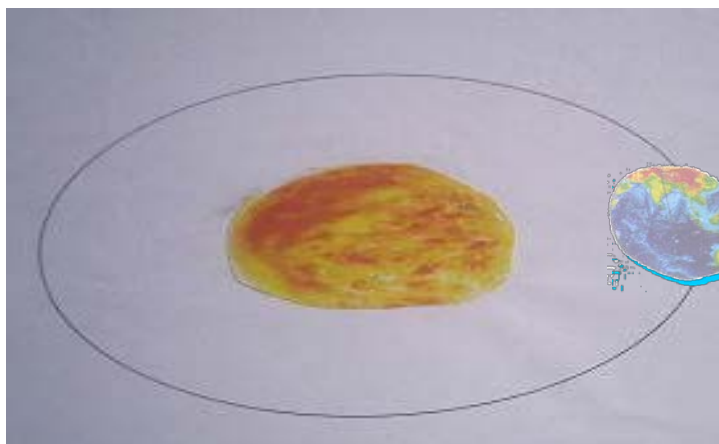
PRE/POST TEST EVALUATION FORMAT
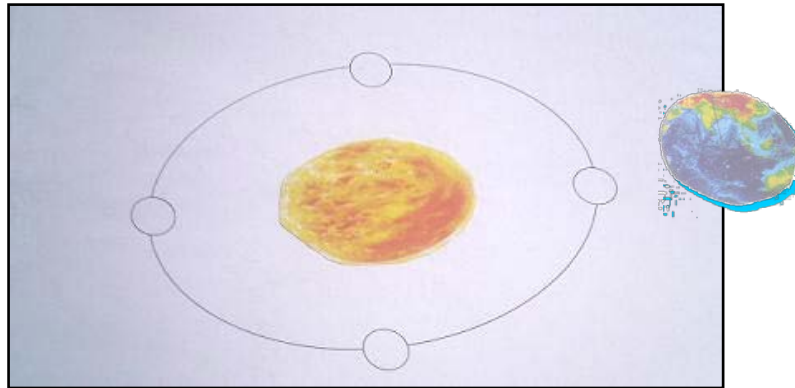
Activity – Based Practical Test

1. Place the picture of the earth so that it is appropriate tilted
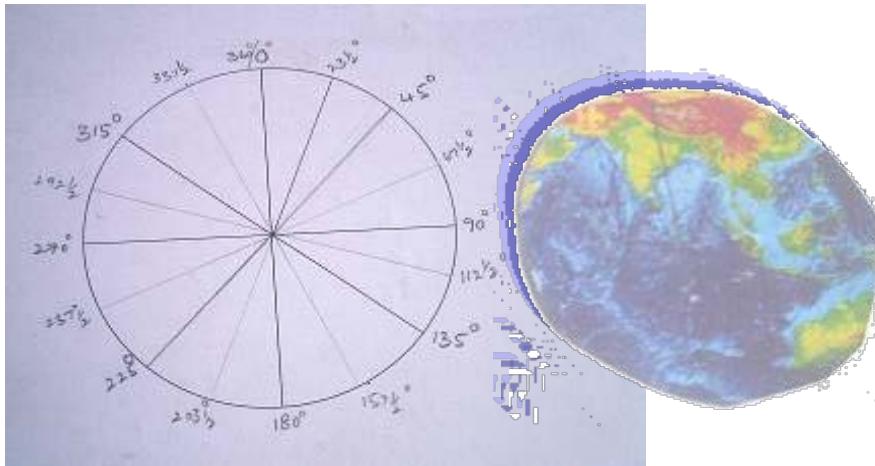
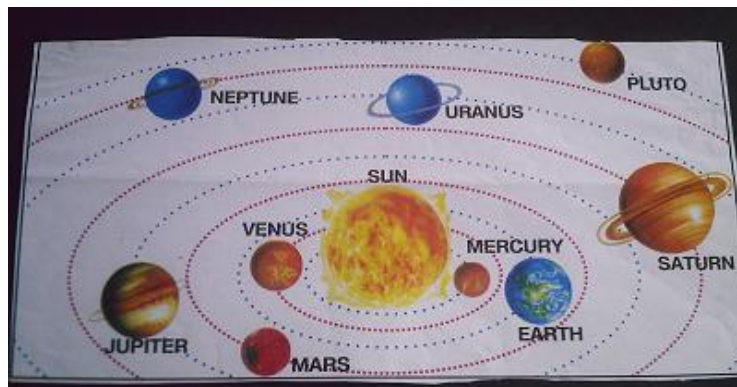2. See the picture and say whether it is day or night in India?

3. Place the picture of the earth is appropriate position in its orbit, so that it is summer northern hemisphere.

4. Identify and name the biggest planet in the Solar system in the model given.

5. In this picture of solar system, place the model of the satellite moon, near the planet to which it belongs to?

Blue Print of the Pre-/Post-Test Format

Aspects of Learning Outcome / Nature of the Test Item		Knowledge	Understanding	Application	Practical Skill	TOTAL
Written Test	Fill in the Blanks	8%	8%	4%	Nil	20%
	Multiple Choice	8%	8%	4%	Nil	20%
	True or False	8%	8%	4%	Nil	20%
	Match the Following	8%	8%	4%	Nil	20%
Practical Test	Practical Skill	Nil	Nil	Nil	20%	20%
TOTAL		32%	32%	16%	20%	100%

Details of Creative Teaching Techniques for Intervention

S. No.	Concept	Teaching–Learning Material	Teaching–Learning Activities
1.	*Sun is a big ball of fire*	Ball made of cloth dipped in kerosene	Suspended with a steel wire and set to fire
2.	*Earth and other planets in the solar system revolve around the Sun in an orbit*	A simulated model of solar system with Sun represented by an orange sphere made of radiating material which when connected to electricity emits heat & light.	The simulated model of sun was heated with electricity, the children were made to feel the heat and see the radiating light and helped to realize that the Sun is a big ball of fire giving heat and light
		A simulated model of solar system with sun in the center (made of material that radiates heat and light when connected to power supply). And miniature planet models representative of size , colour and distance from the Sun attached with steel arms to the Sun. The planets could be manually moved in a orbit around the sun.	Children were made to visually and tactual perceive the size colour distance from Sun and other properties of the planets. Children were made to rotate the planets around the sun to realize how they move in an orbit
		Children are designated roles as Sun, Earth and other planets. Children of representative height and weight were selected and made to wear appropriate coloured dress.	Children were guided to take representative positions as Sun and planets, and were made to move around in orbits.

3.	Two types of movement of the Earth: *(i) revolution around the Sun* *(ii) rotation on its own axis*	Simulated models of Earth and Sun were made of a big orange plastic ball and small blue plastic ball. A long narrow wooden plank was taken and fitted to its rotating base. The ball representing the Sun was fitted to the center of the plank. The ball representing the Earth was fitted to one of the edges of the plank. With a bolt and nut. Spinning the plank on its rotating base made the ball representing the Earth revolves around the ball representing the Sun. The ball representing the Sun could also be spun on the bolt base to look like rotation.	The investigator demonstrated the rotation and revolution of the Earth with the models. When the children were thorough with the concept, the investigator played the game of lotto to develop reading skills related to the concept. He made folded slips with either the word revolution or rotation; children on reading the slip picked by them were to appropriately manipulate the Earth in the model.
4.	*Formation of Day & Night*	Simulated model made of a small metal globe made to rotate on an axis with a small electrical motor and an electrical bulb was fitted opposite representing the Sun. Both the apparatus were powered with 9 watts batteries and the area surrounding the 2 apparatus were enclosed with black construction paper, sprinkled with silver dust to look like the astrospace	The bulb representing the Sun was lit up with power while the Earth was made to revolve with powered motor. This operation demonstrated to the , how when the Earth rotated on its own axis, different sides of Earth alternately faced Sun to receive light and then turn away in dark to have night.

5.	Characteristics of Day & Night: *(i) Days are warm & lighted* *(ii) Nights are cooler and dark*	Manipulative model of day and night with manually revolvable globe and candle with stand to represent Sun.	One side of globe was continuously kept exposed to the candle Sun so that it got heated. Learners were made to feel the heat on that side of the globe and see the light and realize how exposure to the Sun makes day warm and lighted.

6.	Review of Concept of Day & Night	Labeled masks of Sun and Earth in a closed box.	Role play-cum-game where children were to pick out masks at random and then demonstrate their respective positions and movements appropriately.
			    - Rotation + Revolution for Earth
			    - On the spot rotation for the Sun.

Appendix E

Illustrations of Creative Teaching Materials Used in Intervention

1. Sun is a big ball of fire.

2. Earth and other planets in the solar system revolve around the Sun in an

    orbit.

3. Two types of movement of the Earth: *Revolution around the Sun &*

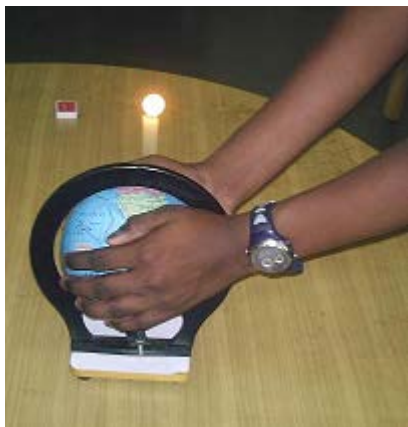   *Rotation on its own axis*

4. Formation of Day & Night.

5. Characteristics of Day & Night: D*ays are warm & lighted; Nights are cool and dark*

6. Role Play to Review of Concept of Day & Night.