Chapter 1

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INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Drawing is an international form of communication dealing with the natural world at an emotional level and a basic common skill that passes beyond the barriers of culture, language and creed. Drawing is not just a specialist subject; it is instead an important part of child’s development. It is the art of representing objects or forms on a surface chiefly by means of lines and colours.

Drawing is a mode of expression. It is as natural to the child as writing and is used by him long before he learns to write and in many instances even before he learns to talk. Its rules and presentation are most nearly related to the rules of mathematics and its guidelines and progressions are logical and mechanical. It enhances the process of perception, thought and bodily action.

Children’s drawings are visual representations made with crayons, markers, or pencils that are generated for pleasure but can also be used for developmental assessment. Children’s drawing represents one of the delights of childhood. Children’s drawings show artistic development and expression. In educational settings, they act as vehicles for assessing a child’s intellectual development, communication skills and emotional adjustment.

Learning through drawing is not only makes our surroundings beautiful, but to reach the deeper layers of the human heart. Whatever natural skills or aptitudes the learner may or may not be born with, with a healthy upbringing and sound education, he or she has the potential to develop into a good and creative being.
1.2 IMPORTANCE OF DRAWING IN BASIC SCIENCE

Basic Science is the part of science that describes the most basic objects, forces, relations between them and laws governing them. All other phenomena may be derived from them. Basic Science is one of the compulsory subjects in the primary school curriculum. It requires careful observation and description. One excellent way to describe an object or concept is to draw it. Drawing is a medium that offers an intimate and open field for imaginative elaboration, in which concepts and ideas can emerge and change with relative ease. Basic Science regularly interfaces with drawing in terms of representation of content knowledge and play. A Basic Science student has to draw a number of diagrams. Therefore it is essential to improve their drawing skills seek correlation and integration between Basic Science and drawing.

Drawing should form an important part of Basic Science education for three reasons. First, the habits which are formed and the training which the child receives, when learning to draw, are particularly useful in their perception. Second, what is studied trains a side of the intelligence which no other subject touches. Third reason is, it trains the children in the appreciation of what is beautiful and their taste in aesthetics. Thus drawing in Basic Science education has two purposes- the practical usefulness and a general educational value. The different dimensions of drawing are follows.

1.2.1 Drawing as eye-hand-mind coordination

The eye requires no training. It is the brain requires to be trained to read the messages which are sent to it through the eye. So, that training the eye-observation- really means training the mind. So drawing becomes an
exercise in concentration of thought. The expression ‘training the hand’ also means training the mind. Hand will do just what the mind is capable of directing it to do. So the fundamental skills of drawing are mechanical and can be taught by all teachers and learned by practically all students.

1.2.2 Drawing as a play

Playing with ideas, forms, shapes and colors is the most fundamental activity among children. Through drawing students use the capabilities of childhood to imagine, dream, create, and invent new ways of solving problems. For the student, it is highly exploratory and purely experimenting with the process of drawing. While drawing students learn to compare, contrast, differentiate and categorize their experiences and perceptions of the world around them. They use their perceptions of the similarities between things, the analogies which they perceive all around them, using and combining them playfully and creatively.

1.2.3 Drawing as a tool for meaning making and a way of communication

Ability to draw enables one to explain many things which cannot be explained by words. Drawing supports the development of abstract thinking. Representational drawings like maps and charts provide children with powerful ways of representing the world and communicating their knowledge to others. It provides a means to find relationships between different components of a whole. Making graphic organizers using lines, basic geometric forms and texts to represent abstract information enables the student to facilitate the conceptual understanding in Basic Science.
1.2.4 Drawing as a final product

The drawing comes from student’s emotional as well as intellectual response to an object. It conveys a deep familiarity with the features, its form, pattern, proportion and colour of that object. Imaginary drawings and schematic drawings also reveal the student’s perception about the theme or concept. So by analyzing student generated drawings one can able to access that student’s drawing skill improvement, understanding about drawing rules, competency in the application of drawing rules and principles, correctness of concept acquisition, existing schema about that concept, aesthetic sense and creativity.

1.2.5 Drawing as an expression

Self-expression is a human necessity. Drawing is the most effective medium which allows creative expression for the student. To be able to express their feeling, attitude, interest, experiences and ideas successfully is a source of joy and fulfilment for the student. That is, they derive greater sense of satisfaction from the completion of a drawing activity.

1.2.6 Drawing as a tool for thinking and learning

Drawing has multiple applications and uses in learning and thinking. We can able to enhance student’s observation skills and to make them better learners by introducing drawing techniques and skills to students at primary level. Generating or developing ideas and personal responses, investigating form, understanding function, modelling, clarifying and mapping ideas, concepts and relationships, analyzing and representing abstract concepts, establishing patterns, developing understanding, questioning observations and communicating to others are some of the key uses of drawing as a process of
learning and thinking. This will involve the development of skills like observation, recognition of elements, scale, proportion and relationship, hand–mind-eye coordination, personal view formation, higher order analysis, metacognition, reflection, communication etc. Drawing act as a container of abstract and conceptual information and that can be considered, manipulated and evaluated. Drawing is really an abstract way of learning that leads to an imaginary way of mental improvement. So, drawing is both a process tool and a final product in the context of drawing as a tool for thinking and learning.

1.2.7 Drawing as a scaffold for idea generation and improvement in knowledge building

A drawing is an idea bank or a reference point. Drawing serves a mnemonic function, an external support that causes children to recall the idea to which it is referred. Scardamalia, et al. (1982) found that young children can be taught to utilize their drawings as a tool, not only to transcribe old ideas, but to discover new ones. They can discover the connections between ideas. Drawing is one of the activities that encourage learning and will lead to child’s progressive growth as a composer of ideas (Temple, et al., 1998).

1.3 NEED AND SIGNIFICANCE OF STUDY

Humans have always been curious about the world around them. The inquiring and imaginative human mind has responded to the wonders of nature in different ways. One kind of response from the earliest times has been to observe the physical and biological environment carefully, look for any meaningful patterns and relations, make and use new tools to interact with nature, and build conceptual models to understand the world. This is science.
Drawing is a very important skill in Basic Science. Drawing can help the child to develop their ideas. Science drawings also help them to share their ideas and observations with others. Drawing is an activity which produces a great variety of outcomes. “It is making marks on a surface, with or without line, with or without colour, with or without black and white, with tools and selected surfaces or dispensing with them, with or without prior aim and purpose. It shades off, with no clear distinction, into painting, low relief carving, etching, computer graphics, and many other activities in science” (Perry 1984). Drawing was a kind of knowledge in accordance with which the learner imagined the form or design of work to be done, and by which he or she reproduced this forming on to the required or available material.

Everybody has the ability to draw; they just haven’t received the same level of guidance, or had as much experience. The arts not only contribute richly to the development of human intelligence, but they offer the means to reach the great diversity of human beings in every school today. It would be easier to achieve significant educational achievements if everyone learned in the same way, but not everyone does. Today in schools, there is a growing diversity of students with different cultural, social, and economic backgrounds that result in very different ways of thinking, learning, and behaving. Children with different kinds of abilities and disabilities are in the same classrooms. Children from disadvantaged families learn together with more economically privileged students. School systems rely on teaching primarily through the spoken and written words. It does not reach all kinds of students. Even students with similar backgrounds perceive and process information differently. Drawing offers varieties of learning opportunities that are
appropriate for all kinds of learners, and can exercise and develop the ability to use analytical and creative thinking.

The main reason for the Basic Science classes being so boring for children is the manner in which it is taught. Very few teachers possess a sound understanding of the child’s mind and their needs. They cannot even imagine the profound role that drawing can play in the development of a child’s personality. In primary classrooms drawings are used only to illustrate stories. They have not been used as a means to express student’s understanding about scientific concepts. A drawing skill oriented instructional approach should have considerable potential for a subject like Basic Science. Several educators and researchers have urged that drawing can be used more frequently to enrich and enliven Basic Science education (Taylor & Andrews, 1993). There have been limited academic studies on the role of drawing at primary level Basic Science teaching. There is no systematic attempt (Lowe, 1987) and little research into the processes of making meaning through drawing in the context of primary classrooms. Educational psychologists have now realized the potentiality of drawing as a tool for learning, diagnostic purposes and as a therapeutic activity. Davis (1959), Edna (1959) and Taylor (1933) have stated that drawing is an essential part of the Basic Science. So, as a teacher and a researcher the investigator intended to carry out the study on this relevant problem.

Besides these the investigator who has already won several laurels in drawing, turned his mind to undertake a study on the effectiveness of a drawing skill oriented instructional approach on achievement in Basic Science and in developing the drawing skill of primary school students. The
investigator hopes that, this new approach can serve as an effective way to organize the child’s educational activities. The present study seeks to explore the effectiveness of drawing skill oriented instructional approach on achievement and drawing skill development of children at primary level.

1.4 STATEMENT OF THE PROBLEM

The present study is intended to check the effectiveness of drawing skill oriented instructional approach on achievement in basic science and for improving the drawing skills of primary school students. Hence the study is entitled

“EFFECTIVENESS OF DRAWING SKILL ORIENTED INSTRUCTIONAL APPROACH ON ACHIEVEMENT IN BASIC SCIENCE OF STUDENTS AT PRIMARY LEVEL”

1.5 OPERATIONAL DEFINITION OF KEY TERMS

Some of the key terms that needed clarification are defined below:

1.5.1 Effectiveness

The term effectiveness stands for the outcome of the study which the influence of one factor or condition is dependent on the presence or absence of another factor or conditions.

1.5.2 Drawing Skill

It is the ability or proficiency to create artistic representation of an object, concept, theme or imagination on a two dimensional plane through systematic procedures, using drawing elements like lines, shapes, composition, colour etc. and following scientific laws and principles such as accuracy, proportion, position and beauty. It is the art of representing objects or forms on a surface chiefly by means of lines.
1.5.3 Instructional Approach

The display or exercise of skills and forethoughts in carrying out one’s plans, schemes etc. It is a new approach of teaching Basic Science. It is different from prevailing method of teaching. It is a planned means to achieve change.

1.5.4 Basic Science

Basic Science is a school subject, comprising of a course in Physical and Biological Sciences, The content of which is drawn from the specialized fields of science and applied sciences.

1.5.5. Achievement in Basic Science

It refers to the total score obtained by an individual as measured in the Basic Science, covering the objectives-knowledge, process, application, attitude and creativity.

1.5.6 Students at Primary Level

The pupils studying in the first seven years of a school which starts with standard I and ends in standard VII. Children attending standards I - VII are regarded as Primary School Children. For the present study, the investigator selected standard VII only.

1.6 OBJECTIVES OF THE STUDY

The major objectives of the study are:-

1. To develop a design on Drawing Skill Oriented Instructional Approach.
2. To develop lesson transcripts in Basic Science based on Drawing Skill Oriented Instructional Approach.
3. To determine the effect of Drawing Skill Oriented Instructional Approach on achievement in Basic Science of students at primary level.
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4. To compare the effectiveness of Drawing Skill Oriented Instructional Approach and present Activity Oriented Approach on achievement in Basic Science of students at primary level.

5. To compare the effectiveness of Drawing Skill Oriented Instructional Approach and present Activity Oriented Approach on achievement in Basic Science under the category of objectives:
   1. Knowledge
   2. Process
   3. Application
   4. Attitude
   5. Creativity

6. To determine the effect of Drawing Skill Oriented Instructional Approach on drawing skill development of students at primary level.

7. To compare the effectiveness of Drawing Skill Oriented Instructional Approach and present Activity Oriented Approach on drawing skill development of students at primary level.

8. To compare the effectiveness of Drawing Skill Oriented Instructional Approach and present Activity Oriented Approach with respect to the different levels of the development of drawing skill:
   1. Understanding
   2. Application
   3. Quality

9. To compare the effect of Drawing Skill Oriented Instructional Approach and present Activity Oriented Approach on drawing attitude of students at primary level.
10. To compare the effect of Drawing Skill Oriented Instructional Approach and present Activity Oriented Approach on drawing interest of students at primary level.

11. To compare the retention in achievement in Basic Science and Drawing Skill of students taught through Drawing Skill Oriented Instructional Approach and present Activity Oriented Approach at primary level.

1.7 HYPOTHESES OF THE STUDY

The hypotheses formulated in the study were:

1. Achievement in Basic Science as a whole will be significantly higher in primary school students taught through the Drawing Skill Oriented Instructional Approach than that of those taught through the present Activity Oriented Approach.

2. Achievement in Basic Science under the different categories of objectives will be significantly higher in primary school students taught through the Drawing Skill Oriented Instructional Approach than that of those taught through the present Activity Oriented Approach.

3. Drawing Skill development as a whole will be significantly higher in primary school students taught through the Drawing Skill Oriented Instructional Approach than that of those taught through the present Activity Oriented Approach.

4. Drawing Skill development at different levels will be significantly higher in primary school students taught through the Drawing Skill Oriented Instructional Approach than that of those taught through the present Activity Oriented Approach.
5. Drawing Attitude will be significantly higher in primary school students taught through the Drawing Skill Oriented Instructional Approach than that of those taught through the present Activity Oriented Approach.

6. Drawing Interest will be significantly higher in primary school students taught through the Drawing Skill Oriented Instructional Approach than that of those taught through the present Activity Oriented Approach.

7. The retention in Basic Science achievement and Drawing Skill of students at Primary level taught through the Drawing Skill Oriented Instructional Approach is better than that of students taught through the present Activity Oriented Approach.

1.8 METHODOLOGY IN BRIEF

Experimental method was used to conduct the present study. The design selected was pre-test post-test non-equivalent group design (Best, 1995) and it was conducted on a final sample of 300 students of Standard VII (150 students each in both experimental and control group). The students were selected from the schools of Ernakulam and Kottayam district in Kerala. One Aided school and one Government school were selected from each district (Government Upper Primary School, Koothattukulam, St: Ignatius Higher Secondary School, Kanjiramattom, Government Higher Secondary School, Kulasekharamangalam and SMSN Higher Secondary School, Vaikom). From each school one division was selected as experimental group and the other as control group. The tools used were the Raven’s Standard Progressive Matrices, lesson transcripts based on Drawing Skill Oriented Instructional Approach and present Activity oriented Approach, an achievement test, a Drawing Skill test, a Drawing Attitude Scale and a
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Drawing Interest Inventory. Raven’s standard progressive matrices of intelligence and previous Basic Science Achievement were used for comparing the groups. The tests were given to both groups as pre-test before the experiment. The experimental group was taught with the lesson transcripts based on Drawing Skill Oriented Instructional Approach and the control group was taught through present Activity Oriented Approach. When all the classes were over, the same tests, except Raven’s Standard Progressive Matrices were administered to the experimental and control groups as post-test. A Delayed memory Achievement Test and Drawing Skill Test were administered to the Experimental and Control groups, thirty days after the post-test in order to measure their retention capacity. The pre-test and post-test scores were subjected to statistical analysis by applying the technique, t-test and Analysis of covariance.

1.9 SCOPE OF THE STUDY

Investigator assumed that the present Activity Oriented Approach has no proper frame work and structure for implementation, resulting in low academic achievement. Teachers interpreted it as their own way. Students can’t able to attain mastery in their lessons. So the investigator decided to design an alternative. The investigator conducted the study to find out the effectiveness of Drawing Skill Oriented Instructional Approach over present Activity Oriented Approach on achievement in Basic Science and in Drawing Skill development of primary school students. According to the best knowledge of the investigator, this is the first experimental study of this type done in Kerala in the field of drawing skill oriented instruction. It is expected that the present study will prove the effectiveness of the Drawing Skill
Oriented Instructional Approach in improving Drawing Skill among Basic Science students. So, the major scope of the study is to develop a new instructional approach to teach Basic Science at primary level. It will help the teachers and taught to understand that teaching as well as learning of Basic Science is a pleasurable experience. Investigator hopes that it would be a contribution to the field of education.

Drawing Skill Oriented Instructional Approach increases the participation and success of students in the classroom. In Drawing Skill Oriented Instructional Approach, learner has the provision to express themselves and their world through pictorial means. In Drawing Skill Oriented Instructional Approach he/she is supplied with varied stimuli and encouraged to experiment with media and ideas. In Drawing Skill Oriented Instructional Approach, a primary school student is able to explore and express individual ideas, new techniques and approaches.

This study also indicates primary level student’s positive attitude towards drawing skill oriented instruction. This study highlights the effectiveness of Drawing Skill Oriented Instructional Approach for bringing out academic achievement. It is expected that the lesson transcripts prepared would be helpful in developing drawing skills, attitudes and interest in students at primary level. The findings of the study can be much helpful in educational planning and in executing different curricular reforms in the field of elementary education programs. In short, the results of the study and the tools prepared and standardized by the investigator would be of immense help to students, teachers and all those who are concerned with primary science education.
programs. It is also presumed that the findings of the study will promote the use of innovative, art oriented instructional approaches.

To authenticate the suitability of drawing oriented activities in the regular classroom, this study employs an experimental design to examine student generated drawings as a means to promote understanding and achievement of concepts in Basic Science. Within a cognitive framework, this study isolated and investigated the effects of Drawing Skill Oriented Instructional Approach on Basic science learning.

1.10 LIMITATIONS OF THE STUDY

The investigator has made every attempt to make the study precise and a perfect one. But certain unavoidable limitations have crept in to the study.

1. The study was confined to only a representative sample of 300 students from two divisions of four schools. The sample for the study was taken from Ernakulam and Kottayam districts only. More generalised result would have been obtained if different districts had been taken for the study. The time factor forced the investigator to limit the study only in two districts and confined only two units of upper primary level Basic Science syllabus.

2. The selection of one to one group is not possible in the present school setup. So, classroom intact groups were selected for the experiment because of practical and administrative difficulties.

3. In this study the students are taken only from VII th standard Malayalam medium classes. Due to time limit students in other standard are not taken.
Despite of the above mentioned facts, all the possible attempts have been made to make the study as reliable and objective as possible. It is hoped that the results of the present study would be helpful in finding new frontiers in the field of Education.

1.11 ORGANISATION OF THE REPORT

The report of the study is arranged in six chapters.

**Chapter I** - It contains a brief introduction of the problem, background of the study, need and significance of the study, statement of the problem, definition of key terms, objectives of the study, hypotheses, scope and limitations of the study.

**Chapter II** - This chapter throws light on the theoretical background of the Drawing Skill oriented Instructional approach.

**Chapter III** - It presents a survey of related literature and studies conducted in the area selected.

**Chapter IV** - This chapter describes the methodology of the study in detail, variables of the study, design, population, tools used, samples selected, procedure adopted in the experiment and statistical technique used.

**Chapter V** - This chapter presents the results of analysis made in accordance with the objectives and hypotheses.

**Chapter VI** - This chapter gives a summary of procedures adopted, findings of the study, the tenability of the hypotheses followed by conclusions based on findings and recommendations for further studies.