Chapter III

METHODOLOGY

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3.1.0   INTRODUCTION

The main purpose of the present study was to design, develop and implement a Computer Based Arts Education (CBAE) package for standard IX CBSE students and to find out its effectiveness. Thus the methodology of experimental research had been followed for the present study. Details of the research methodology followed for the completion of the present study is given as follow.

3.2.0   RESEARCH METHODOLOGY

As the present study was experimental in nature, the experimental research design was followed. The details of the methodology followed for the present study have been presented covering the method and procedure of selection of the course content for developing the package, selection of sample, construction of tools for data collection, conducting the experiment, method of data collection and data analysis.

3.2.1   Research Design

As the sample was selected purposively, quasi experimental design was followed in the present study. The pretest-posttest nonequivalent- groups design was followed in the present study as Best and Kahn (1996) describes, 'this design is often used in classroom experiments when experimental and control groups are such naturally assembled groups as intact classes, which may be similar'. The design of the present study is presented diagrammatically as follow.

$$O1 \qquad X \qquad O2$$
$$O3 \qquad C \qquad O4$$

O1, O3= Pretests;   O2, O4= Posttests;   X = Experiment group;   C = Control group

The pre-test was administered to the students of both the groups before giving treatment and the post-test was administered after the experimentation.

3.2.2 Population

All the CBSE English medium secondary schools of Baroda city providing Art Education as a subject were considered as the population of the present study. There were 13 schools in Baroda city affiliated with CBSE and providing Art Education as a subject. All the students of standard IX of these CBSE English medium secondary schools, taken art education as a subject for the academic year 2012-13 were considered as the population of the present study. So, 13 CBSE schools in Baroda city and all the students of standard IX of these 13 CBSE schools of Baroda city constituted as a population for the present study.

3.2.3 Sample

The sample for the present study was selected purposively. As per the convenience of conducting the study, the researcher selected the sample for the present study. Navrachana School, Baroda was taken as the sample school where Art Education is a subject for secondary standard students following CBSE syllabus. As the researcher is working as Art Education teacher in this school and the school authority agreed to co-operate and provide the help needed by the researcher to conduct the study, the researcher took this school as the sample for the present study. There were four divisions in Standard IX and nearly 40 students were there in each division. So, standard IX students of division A formed as the Experimental group and standard IX students of division B formed as the Control group. There were 40 and 42 students in the experimental and control group respectively. On the basis of the pre-test achievement in Art Education, the experimental and control groups were made equivalent. After making the groups equivalent, 30 students from division A and 30 students from division B were considered as the sample for the present study.

3.2.4 Development of Computer Based Art Education (CBAE) Package

The researcher had developed a Computer Based Art Education (CBAE) package using the computer tools like, multimedia, paint brush, photo shop, coral draw, flash, power point, photography, scanner, electronic slate, Internet etc. The developed package was used by the teacher to help the students to learn art education in an interactive learning environment. While developing the package the researcher had taken the opinion of experts in the area of art education and computer education. While preparing the CBAE, the researcher had considered the level of student, their environment and likeness. The details of the plan and procedure of the developed programme includes procedure of selection of the course content for developing the package, formulation of instructional objectives, selection of instructional inputs, systematization of the course content, laboratory tryout of developed package etc. have been described as below.

3.2.4.1 *Selection of Contents for Developing CBAE Package*

As there is no fixed curriculum of art education in CBSE schools, teachers have to select the contents of art education as per their choice and based on the CBSE guidelines. Visual art has very important role in education in general and in art education in particular. It is believed that the visual art education is essential to human experience. The visual arts convey a form of communication, knowledge and meaning which may not be learned through other subjects. It furnishes the ideal avenue for significant learning experiences in all areas of the curriculum. A comprehensive art program benefits all students by developing creative problem solving skills and fostering intellectual and physical abilities. The study of visual art provides students with a wider perception of their environment and a greater understanding of culture and history. It help students to understand aesthetics, contemporary visual culture, make informed decisions and understand decode symbolism. Visual arts promote cooperation, respect for diversity and connect students to their community. The study of visual arts promotes self-discipline, encourages critical thinking and enhances communication skills. Looking into the benefits of the visual arts the following five contents related to visual arts are considered for Standard IX

following the guideline of secondary level Art Education Curriculum prepared by CBSE in 2012.

    i.   Doodle to Drawing

    ii.   Sketching to Still-Life

    iii.   Painting to Pop-Art

    iv.   Poster to Publicity

    v.   Creation to Composition

The investigator has prepared lesson plans on these selected five contents of the visual arts (given in Appendix VI). These five lessons have the contents to help students to learn the value of their inherent creativity in arts, while having fun as they explore new ideas, materials and techniques in creating visual arts. In the traditional teaching classes of visual arts, it is found that teacher is just giving to create art as per the knowledge of students but it is difficult for students to add their ideas in traditional ways of art education. With the help of computer, the students will be able to learn and create visual art better than the usual method of teaching arts education.

3.2.4.2 *Formulation of Instructional Objectives*

After selecting the stated five contents, content analysis was done and instructional objectives were formulated for each selected contents. The investigator kept in mind the following objectives while developing the instructional package.

Students will select and apply media, techniques and processes with proper understanding which can be achieved with the following specific objectives.

    a)   To apply media, techniques and processes with sufficient skills, confidence and sensitivity to realize their intentions.

    b)   To conceive and create original art works that would demonstrate a connection between personal expression and the intentional use of art materials, techniques and processes.

c) To communicate ideas consistently at a high level of effectiveness in at least one visual art medium.

Students will understand and apply elements and principles of visual arts which can be achieved with the following specific objectives.

a) To judge the effectiveness of different ways of using visual characteristics in conveying ideas.

b) To apply comprehension and skill in incorporating the elements of art and principles of design to generate multiple solutions

c) To solve effectively a variety of visual art problems.

Students will consider, select and apply a range of subject matter, symbols and ideas in visual arts which can be achieved with the following specific objectives.

a) To use, record and develop ideas for content while working with visual arts..

b) To use subject matter, symbols, ideas and themes that demonstrate knowledge of contexts, and cultural and aesthetic values to communicate intended meaning while doing exercises of visual arts.

Students will understand the visual arts in relation to our history and culture which can be achieved with the following specific objectives.

a) To analyze and interpret artworks in terms of forms, cultural and historical contexts, and purposes.

b) To analyze common characteristics of visual arts evident across time and among cultural/ethnic groups to formulate, analyses evaluate and interpret its meaning.

c) To compare art works of to one another in terms of history, aesthetics and culture and to justifying conclusions made in the analysis and using these conclusions to inform their own art making.

Students will reflect upon, describe, analyze, interpret and evaluate their own and others' art works which can be achieved with the following specific objectives.

a) To research and analyze historic meaning and purpose in varied works of art.

b) To reflect critically on various interpretations to better understand specific works of art.

c) To defend personal interpretations using reasoned argument.

d) To apply critical and aesthetic criteria for the purpose of improving their own works of art (e.g., technique, formal and expressive qualities, content)

Students will make connections between visual arts, other disciplines and daily life. This can be achieved with the following specific objectives.

a) To analyze and compare characteristics of the visual arts within a particular historical period or style with ideas, issues or themes of that period or style.

b) To compare the process of creation used in the visual arts with the process of creation used in the other arts and non-arts disciplines.

c) To create and solve interdisciplinary problems using multimedia.

d) To apply visual arts knowledge and skills to solve problems relevant to a variety of careers.

3.2.4.3 *Selection of Instructional Inputs*

The formulation of the objectives was followed by the selection of inputs and their organization. Educational technology provided a large number of instructional techniques through application of which learning could be enhanced. Therefore, in order to be effective these techniques were to be judiciously employed considering the size of the group, learners' characteristics, availability of resources and the feasibility aspect.

As the art education is totally based on the teachers' experience, knowledge and self-understanding about the different components of art education, there is no other method than imagination about the given concept and creating composition related to the given subject. The formulated instructional objectives cannot be achieved up to the mark through the traditional methods for teaching art education. Many a times, the large number of students in the art classroom also hinders teachers to pay individual attention to each student. As the nature of the computer is interactive, it has ability to present the content through colour graphics, 2D/3D images and also one can use other software in preparing the visual art. The

following are some of the software needed for the computers, which assist the teaching of visual arts and fulfills the requirement of the selected contents like, Microsoft- Paint, Microsoft- Power point, Corel-Draw, Corel-Paint, and Adobe-Photoshop. These programmes are very easy to handle and they are already in the school curriculum in the computer subject. Students are familiar with the use of these software. As a part of CBSE curriculum all the schools have their own computer laboratory and these software are taught to the students as a part of their curriculum of standard VII and VIII. Thus looking into these all, the investigator has installed these software to see the suitability of the prepared lesson plans on the selected five contents of visual art and developed computer based art education package might be appropriate to teach visual art through the computer as computers can be used in all aspects of visual arts by using the additional software.

3.2.4.4 *Systematization of the Package*

After formulation of instructional objectives and selecting the instructional inputs, the materials for the package were arranged systematically by taking with consideration adequacy, logical sequence of the material, terminology used as per the objective of the teaching visual art. For all the five topics "Drawing", "Still life", "Painting", "Poster" and "Composition", the investigator has developed separate computer based instructional materials. The investigator prepared the material for each topic according to the need of particular topic with enough examples. The prepared material was shown to two experts in the field of Art Education for checking the systematic flow of instruction and the formation of the material. The suggestions given by the experts were incorporated.

Keeping the benefits of computer in accessing, organising and presenting information, students can search for obscure artists and art movements, access national and international level galleries, contemporary art practice, range of art influences, film, technology and art practice. Based on these, students can create more real art works in larger and grander scale. Looking into these, drawing and painting software, digital still and video cameras, electronic portfolios, scanners, colour laser printers, samplers, image manipulation, 3D animation, internet and web page construction tools were added in the package so that students can be

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able to record and save ideas quickly, manipulate line and colour, modify and incorporate images and employ motion by enhancing self expression and correcting mistakes. By including these all, the whole CBAE package was developed.

After completion of the CBAE package, the developed package was shown to the two experts in the field of Educational Technology and two experts in the field of Art education for their comments on content validity, checking the mode of presentation, clarity of the graphics and modality. Necessary alterations were made as per the recommendations of the experts and final version of the package was finalized.

3.2.4.5 *Laboratory Tryout*

After the development of the CBAE package, it was tested in as the laboratory tryout. For this, the sample was small consisting of five students. Laboratory tryout was personally done by the investigator. The difficulties faced by the students were noted and also their feedback about the developed package was received. In the light of the suggestions and feedback of students, the content was modified. The validated CBAE package is presented in the form of compact disc with the thesis.

3.2.5 Tools for Data Collection

The following tools and techniques were prepared by the researcher to collect data from the sample and to achieve the objectives of the present study.

3.2.5.1 *Achievement test*

To find out the achievement of the students in art education, an achievement test in art education both theoretical and practical was prepared by the researcher to study the overall art education achievement of the students. The achievement test constituted the questions covering the content of five chapters i..e. "Drawing", "Still life", "Painting", "Poster" and "Composition". The researcher outlined the blue print for the construction of the achievement test in art education taking into consideration the type and level of questions. The blue print

was of 200 marks, 100 marks for theory and 100 marks for practical with all type of questions based on appropriate exposure of the content from all five chapters and with coverage to knowledge, understanding and application levels questions. Adapting the generated blue print, the achievement test in art education was constructed by the researcher. The achievement test consisted of two sections, section I was theory test having 100 marks and the section II was practical test having 100 marks. The constructed achievement test was shown to five experts (Teachers) in the field of art education for the purpose of its validation. The suggestions of the experts were duly incorporated in the art education achievement test. Determining the content validity of the art education achievement test, the test was administered to 90, standard IX students of CBSE and the reliability of the achievement test was determined using test-retest method. The reliability coefficient using test retest method was found to be 0.93 showing a high level of reliability. The art education achievement test is given in appendix II.

3.2.5.2 *Reaction Scale*

To find out the reactions of the students in the experimental group towards the developed CBAE package, the researcher developed a five point reaction. Thirty five items having positive polarity were given in the reaction scale. All the items were close ended and respondents had to tick mark ($\sqrt{}$) in the appropriate box ranging from Strongly Agree to Strongly Disagree. The reaction scale was constructed considering the following points regarding developed Computer based Art Education Package.

- Clarity of language
- Presentation of content
- Students liking for the developed package
- Interest of the students
- Ease in learning the topics of visual arts
- Understanding and applicability of knowledge

The constructed reaction scale was referred to five experts in the field of Education and Visual Arts to judge its adequacy, language and way of presentation and suggestions. Necessary modifications were done as per the suggestions received from the experts. The final version of

the reaction scale was referred to experts in the field of English language for language correction. The reaction scale is given in Appendix III.

3.2.5.3 *Observation*

Participatory observation was used as a technique to study the skills, craftsmanship and presentation style of students in art education. The researcher observed the students of experimental group while working with them.

3.2.6 Implementation of the Developed CBAE Package

After finalizing the package as per the suggestions of the experts and conducting the laboratory try out, the package was kept ready for the final experiment. Lesson plans were prepared by the researcher in all the five units considering the components of the developed CBAE package. The lesson plans are given in Appendix I. After selecting the sample, the experimental group consisted 40 students and the control group consisted of 42 students. The developed computer based art education package was implemented on the experimental group for a period of one academic year (April, 2011 to February, 2012) by the researcher. The achievement test in art education was administered on the experimental and control group students separately as the pre-test, before starting the experiment. After the administration of the pre-test, the investigator taught the Control group with the traditional method without CBAE package. The researcher also taught the experimental group using CBAE package. For the experimental group, the investigator explained students about the package, the purpose of the package and how to use it. The orientation took one period of every month for each lesson. All the required computer software and the LAN with internet were installed in the computer lab. These software are the basics of the PCs which already installed. The student can use it with their flexibility and freedom to do the Art work related to the topic. They have the liberty to use their creativity to implement the modern technology in the individual lessons. Each lesson has the limitation as well as possibility to use the computer based devices to integrate the Visual Art subject more creative, interactive and dynamic. The children can share their thoughts in the public social media, where they can get the feedback or suggestions. The one lesson can be share among the group of people related to the topic, where it can give a social

impact in the society. They can click the picture and upload in the national or international competitions or the Art galleries. The group was exposed to the package for a hour every day during the Art period for five months. During the same period also, the researcher had taught the art education to the control group from the same school using traditional approach. At the end of the experiment the investigator administered achievement in Art Education on both the groups as post test and an reaction scale on the Experimental group only. Few pictures of the art work of the experimental group is given in the figure 3.1 to figure 3.5.

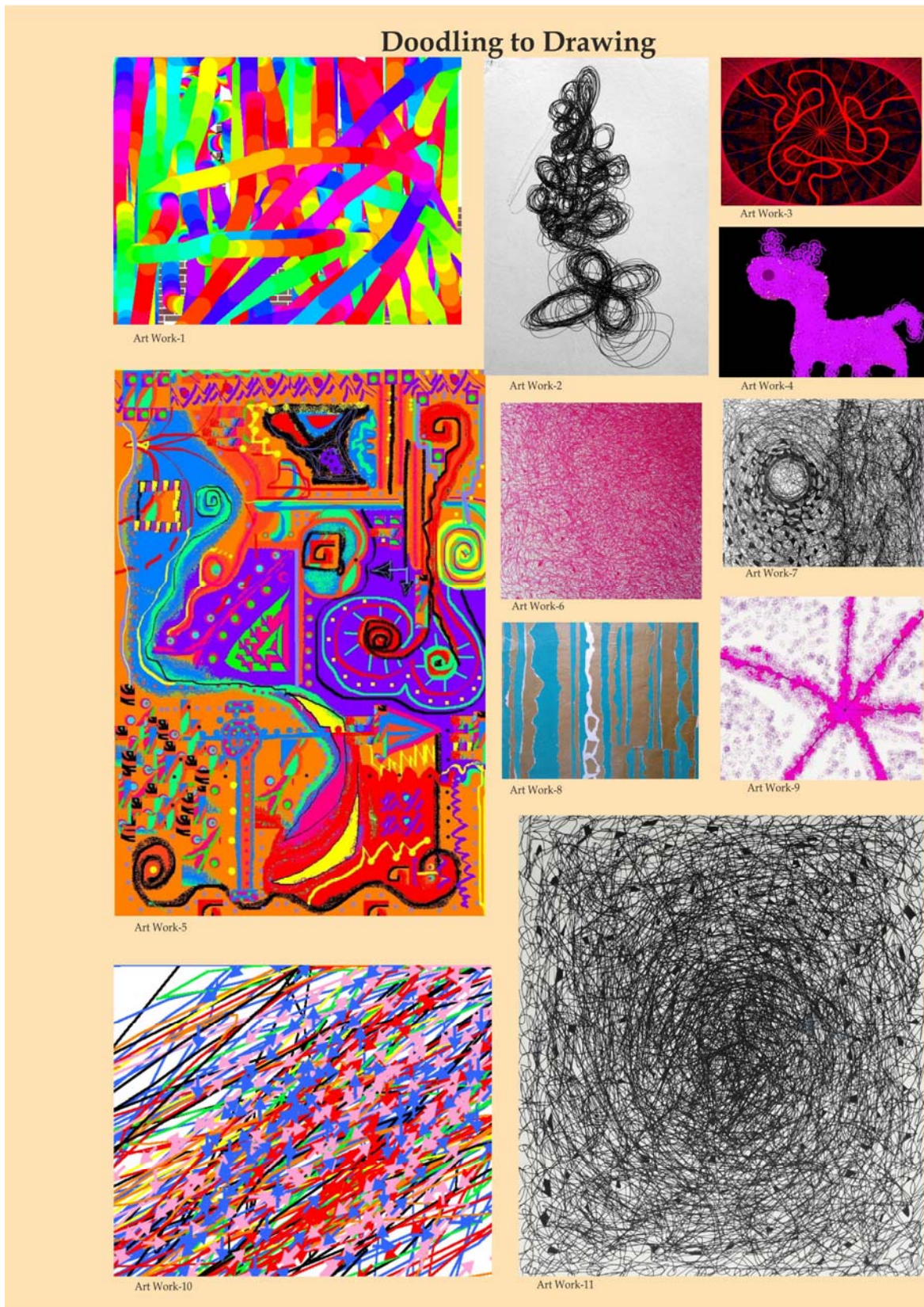**Figure 3.1: Art work prepared by the students of experimental group in Doodling.**

Figure 3.2: Art work prepared by the students of experimental group in Sketching.
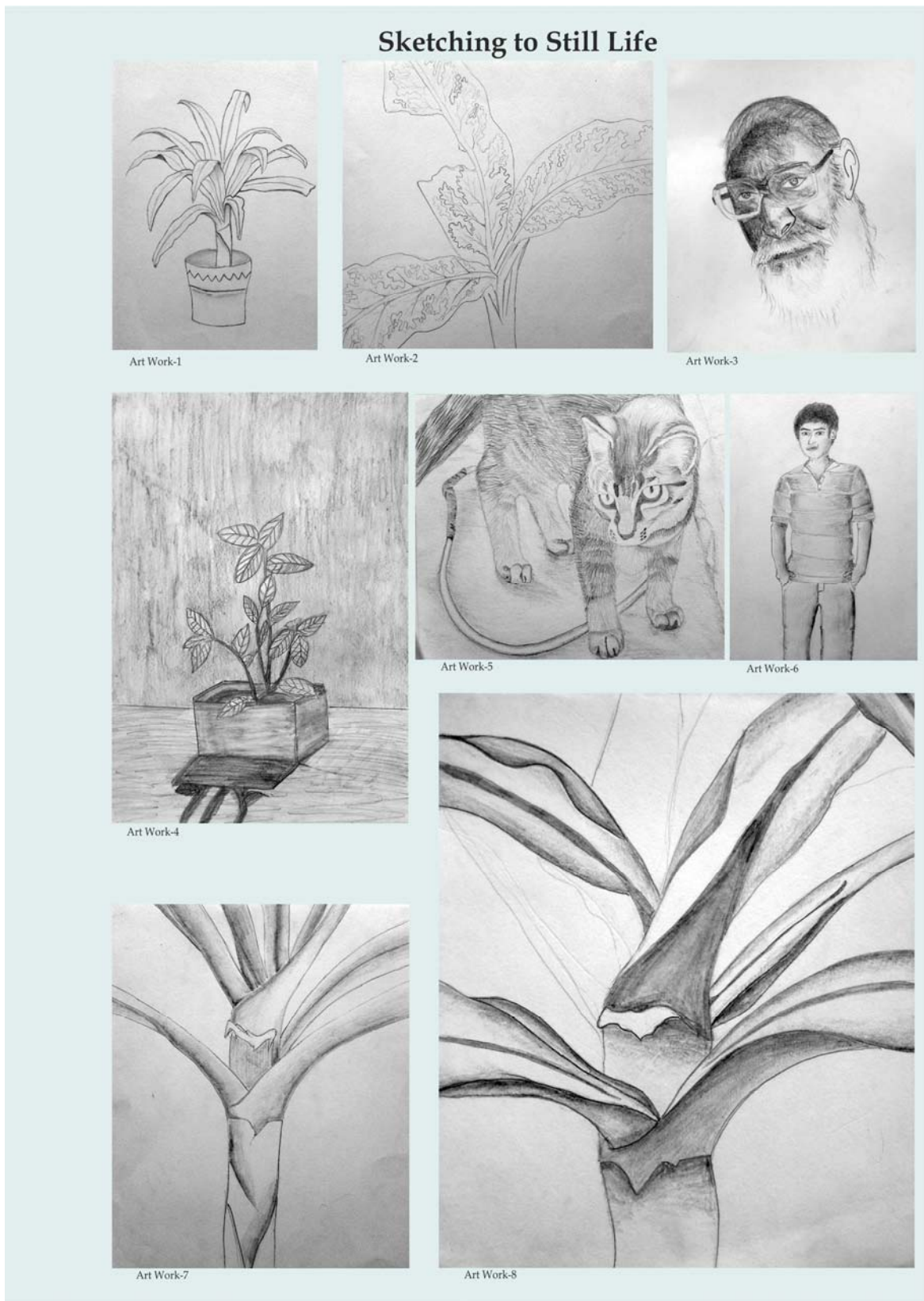

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Figure 3.3: Art work prepared by the students of experimental group in Painting.
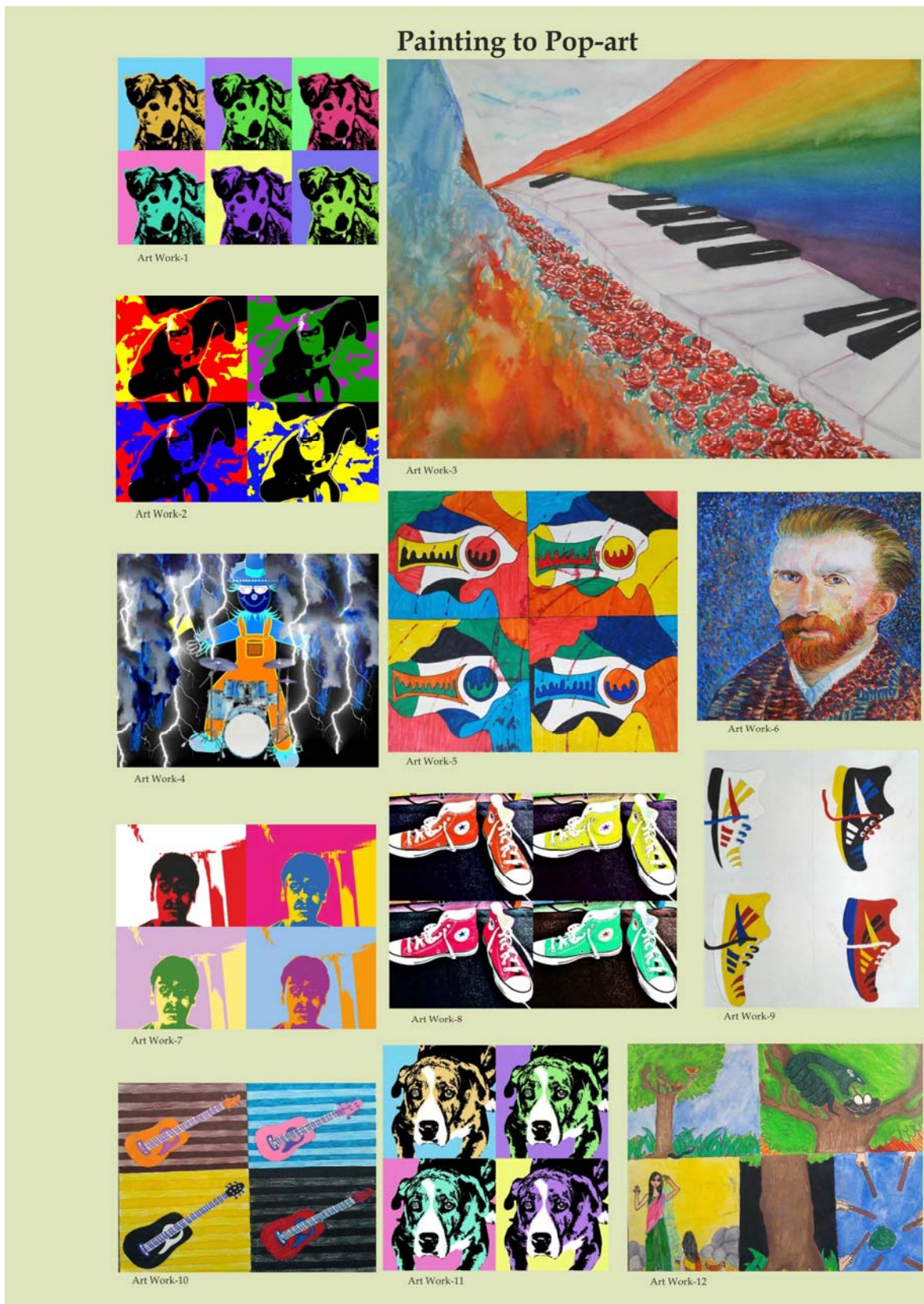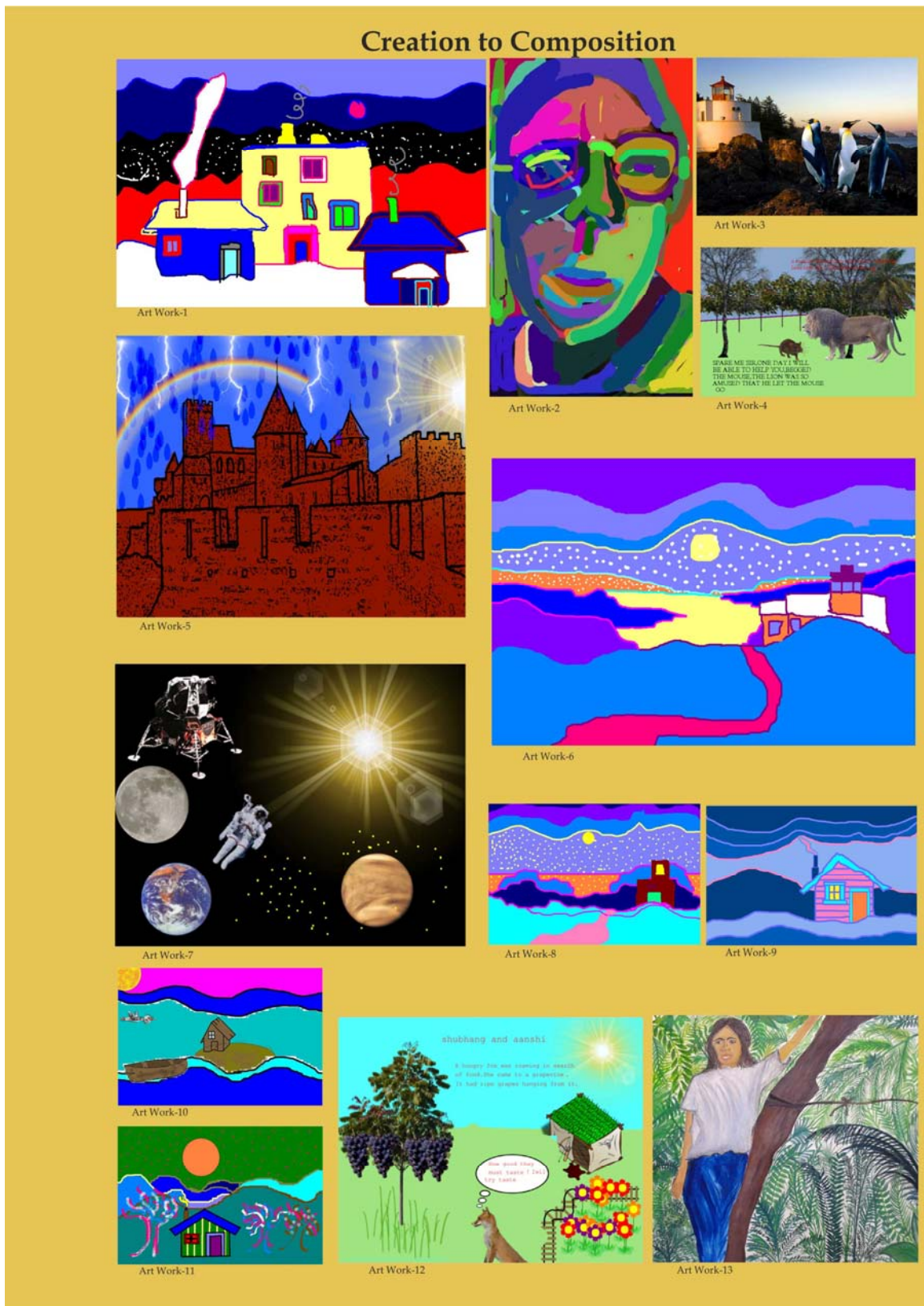
Figure 3.4: Art work prepared by the students of experimental group in Poster.

Figure 3.5: Art work prepared by the students of experimental group in Composition.

3.2.7   Data Analysis

To realize the objectives of the proposed study both quantitative as well as qualitative methods of data analysis were used. The present study was quasi experimental in nature. The collected data obtained through pre-test and post-test were analyzed by employing quantitative data analysis techniques. Pre-test achievement data related to art education was used to make control and experimental group equivalent. Mean, Standard Deviation, Standard Error of Mean and Mann-Whitney U-test were used to analyze the quantitative data collected through post-test. The non-parametric Mann Whitney U-test was used to analyze the data as the sample was taken purposively as it is considered as the most powerful non parametric equivalent of t-test of parametric family. Data collected through reaction scale was analysed quantitatively with the help of percentage calculated for the frequency of responses and Intensity Index (II). The detailed analysis and interpretation of the data is given in chapter IV.