TALKING AMONG GRADE SEVEN PEERS AS AN INFLUENCE ON THE TEACHING OF DRAWING AND ON THE ACQUISITION OF DRAWING SKILL

by

VIVIAN BEVIS

B.A., Duke University, 1959

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Department of Visual and Performing Arts in Education

The University of British Columbia
1956 Main Mall
Vancouver, Canada
V6T 1Y3

Date April 22, 1982
Abstract

The purpose of the study was to find out more about verbal and visual aspects of teaching art and learning to draw in the classroom. It was to determine what influence language has on visual processes in drawing and to examine effects of talking and verbal thinking on the acquisition of drawing skills of pre-adolescent students in grade seven.

The study consisted of a 10-week drawing course for four classes of grade seven students in an elementary school in Vancouver, British Columbia. Instruction was the same for all classes except that in two of the classes students were permitted to talk to each other while drawing and in two classes students were instructed not to talk while drawing. Data were collected and observations recorded using scores on drawing tests, student evaluations, drawing surveys and teacher logs.

Although scores on drawing tests showed little difference between the two groups, consistent observations indicated that students did not talk and draw at the same time. Students who talked, stopped drawing, completed fewer drawings, made less frequent reference to the model and followed fewer directions. When comparing the work of the two groups, teacher attitude toward the talking group reflected more dissatisfaction because of the higher incidence of incomplete work and the necessity of having to raise the voice in order to be heard.
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Chapter 1

INTRODUCTION

Introduction to the Study

Most children love to draw. Their drawings have been the source of numerous studies and observations which have produced general agreement that children's artistic ability unfolds naturally in a linear, sequential and demonstrable series of stages from the pre-school scribble to the pre-adolescent attempt at realistic representation, and that there the progression stops. The clear decline in artistic activity and the apparent decline in some artistic skills (Gardner, 1973; Kerr, 1937; Lowenfeld & Brittain, 1970; Read, 1945; Richards & Ross, 1967) suggest some sort of change or interference in the developmental process at the onset of adolescence. According to Harris (1963) some adolescents will experience a resurgence of artistic activity around the ages of 14 or 15 years, but others will not. He concludes that unless a revival of interest occurs by that age most children will show no further progress in drawing. Theories which link drawing skill to increased perceptual and cognitive growth have not been able to explain why many adults do not progress beyond the drawing stage of 11-year olds (Lark-Horowitz, 1936).

Problem

The problem central to this study is the apparent cessation of drawing progress at the time of adolescence or in conjunction with the advent of formal mental operations (Inhelder & Piaget, 1958). Several explanations have been given to account for this arrest in artistic development. Among them are: 1. changes in cognitive development; 2. influence of peers;
3. heightened interest in social and sexual matters; and 4. increased dominance of language (Dorethy & Reeves, 1979; Rosensteil & Gardner, 1977).

Significance

One of the theories most frequently advanced for the apparent cessation of drawing progress at this stage is that language, which is emphasized in Western culture and education, becomes the dominant and most efficient mode for adolescents to express their increasingly complex and abstract concepts. The contention is that, education, which stresses the importance of rapid recognition and naming of objects, encourages students to learn to label visual stimuli quickly and to pass on to the next stimulus before the first one has been examined in depth. Students are likely, therefore, to become scanners of the environment instead of deep perceivers and when they do draw, to use facile symbols or stereotypes that represent what they already know instead of seeking new information from their visual surroundings.

As verbal skills become more efficient for expressing and interpreting abstract concepts, many pre-adolescents stop making graphic efforts altogether and rely not only upon words to express themselves, but upon linguistic thought to process most information (Arnheim, 1969; Buhler, 1930; Edwards, 1979; Harris, 1963; McKim, 1972). Harris (1963) feels that unless children develop graphic techniques needed to depict abstract qualities and relationships before adolescence, they will later abandon drawing altogether, thereby reducing their opportunities for fuller perceptual learning.

Arnheim (1969), McKim (1972), Randhawa (1978) and Rohwer (1970) view the problem from a wider perspective. They think that children should be taught to exercise both verbal and visual thought processes throughout their school experience. Although art programmes are often singled out as the only place in the curriculum where visual skills are stressed, the extent to which they are consciously taught to the exclusion of verbal skills
is not known. Dorethy and Reeves (1979) contend that more needs to be known about the verbal and visual aspects of the art learning process and that little supporting data have been developed about the production of the visual arts in realistic classroom situations.

Purpose

The purpose of this study is to examine possible verbal influences on the drawing process and on the teaching of drawing in the classroom. Primarily, the study will examine effects of talking among pre-adolescent peers in grade seven in relation to (a) acquisition of drawing skill, (b) visual attention, (c) classroom performance and (d) teacher attitudes.

Propositions

The propositions to be investigated are three-fold:

1. That talking in the art room among pre-adolescent grade seven students between the ages of 11 and 12 years inhibits drawing from direct observation and hampers acquisition of representational drawing skill.

2. That acquisition of drawing skill results in more positive attitudes of students toward their drawing and artistic ability.

3. That talking among peers in the art room influences teacher attitudes toward the class.

Assumptions

There are three basic assumptions underlying this study:

1. That the brain has the ability to process information in two fundamentally different ways which have been variously identified in the literature of art and of psychology. For the purpose of this study they are being called verbal thinking and visual thinking.

2. That, by the onset of adolescence, the ability to process information verbally becomes more efficient than the ability to process it
visually.

3. That verbal thought and expression, having become dominant by the onset of adolescence, inhibit visual thought and expression.

Limitations

The study is limited to approximately 100 elementary students at the grade seven level in one urban school. No attempt is made to classify the developmental levels of these students nor to determine the preferred learning style for individuals. Nor is it necessary for the purposes of this study to allocate cognitive functions to one side of the brain or the other. The instructional activities are, with the exception of one memory exercise, based entirely on drawing from direct observation and do not purport to represent a complete range of classroom drawing activities. The teacher, in all classes, is the observer and recorder.

Definition of Terms

1. **Blind contour drawing** - A contour drawing which is made while observing an object or group of objects and which is drawn without looking at the drawing in progress.

2. **Cognitive** - All mental operations involved in the receiving, storing and processing of information including those processes of sensory perception, memory, thinking and learning.

3. **Contour drawing** - A drawing in which the lines represent the edges of a form or a group of forms.

4. **Deep perception** - A synthesis of intelligence and vision whereby not only surfaces, but underlying internal structures and relationships are understood and appreciated.

5. **Holistic** - The simultaneous, global, processing of an array of information in a total configuration as opposed to sequential processing
of the separate parts.

6. **Intuitive** - Direct and apparently unmediated knowledge; a judgment, meaning or idea that occurs to a person without any known process of reflective thinking.

7. **Mode** - A set of cognitive operations used to process information.

8. **Representational drawing** - A drawing made from direct observation of an object or group of objects.

9. **Stereotype** - The reduction of visual form to a symbol or habitually used convention.

10. **Verbal thinking** - The inferred mental operation used to process linguistic information.

11. **Visual thinking** - The processing and interpretation of perceptual sensory data gathered from internal or external sources which is characterized by global, simultaneous, intuitive mental operations.

**Review of Literature**

The relationships between (a) seeing and drawing, (b) seeing and visual attention, and (c) visual thinking and drawing from observation have occupied much of the literature on representational drawing.

**Seeing and drawing.** In 1941 Nicolaides wrote that drawing had little to do with technique, aesthetics or conceptions, but only with the "act of correct observation." Hill (1966) asserted that the role of the teacher was to help the student learn to observe by providing experiences designed to waken his vision and to discourage anything that might inhibit visual exploration. Hill felt that the ability to draw depended not only on technique, but also on the ability to attend to the visual environment and perceive it fully and deeply.
There is general agreement that children, as well as adults, do not use their full faculty for seeing. They tend to react automatically to stimuli and select from various signals only those which provide information relative to their momentary needs. Much escapes their perception due either to an undisciplined visual sense or to a preoccupation with verbal identification of things. The emphasis on naming objects creates the illusion of knowing the object and suppresses the willingness to examine it from a fresh perspective. McKim (1972) thinks that visual mental ability which is not used decays and that premature verbal closure contributes to perceptual atrophy. Children look but do not attend to what they see.

Seeing and visual attention. Mulholland (1978) studied visual attention with electroencephalograms and found that attention to visual stimuli is usually associated with a reduction of alpha rhythms. When a novel or relevant stimulus is first presented the alpha rhythms are suppressed and gradually recover to original levels as the stimulus becomes familiar. Studies with children watching T. V. showed high alpha levels which indicated that they were not really attending to what they were seeing.

Schwartz, Davidson and Pugash (1976) studied visual attention in relation to hemispheric functions of the brain. They trained subjects to produce more alpha rhythms in one cortical hemisphere than in the other. When subjects produced more alpha rhythms in the right hemisphere, they reported significantly more verbal cognitions. When they produced more in the left they reported more visual, non-verbal cognitions.

Visual thinking and drawing. The ability to draw from direct observation depends on technique and on the ability to attend carefully to the nuances of visual form. In order to observe properly for the purposes of correct drawing Hill (1966) asserts that the mind has to be emptied of all
extraneous thought and encumbrances. The role of the drawing instructor is to stimulate the student's vision and to discourage anything which inhibits visual inquiry. The teacher's role is to make the student directly aware of the sensations that impinge upon vision, but which do not often reach conscious levels of thought.

Maslow, May, and McKim (in McMullan, 1976) all refer to conditions similar to Hill's awareness of sensations which impinge upon visual thought but which do not reach conscious or rational levels of thought as preconditions for creative thought. They describe an open, relaxed state of mind which is characterized by global, open perception. Maslow (1971) calls it "mindless perception" by which he means an ability to become "lost in the present" and which he feels is an essential element in creativity. May (1975) calls the same quality "detached involvement" and McKim (1972) refers to it as "relaxed attention." In all of these, irrelevant tensions are relaxed in order to release full energy and attention to creative tasks at hand.

According to Ayrton (1957) the process of drawing involves, above all else, putting visual intelligence to work. Although the verbal mode of processing information (verbal thinking) has been thought of as dominant, it has long been recognized that a visual mode (visual thinking) operates in human intelligence as well (Guilford, 1967). This dualistic nature of thinking has been identified and labeled variously as (a) Secondary and Primary Processes (Freud), (b) Accommodation and Assimilation (Piaget), (c) A. Cognition and B. Cognition (Maslow), (d) Convergent and Divergent Thinking (Taylor), (e) Realistic and Autistic Thinking (Bleuler), (f) Intellectual and Intuitive or Sequential and Simultaneous (Luria) and (g) Linear and Lateral (deBono) (all cited in Samples, 1976).
Despite the labels, the characteristics of each pair of mental operations are basically the same. The first term of each pair refers to a part-by-part, linear, logical way of processing information and the second to a global, holistic, intuitive process. Ornstein (1972), Pavio (1971) and Randhawa (1971) assume that the two modes are functionally independent but interconnected. However, because the functional aspect of visual thinking is usually embedded in a verbal context it can only be studied by taking language explicitly into account either by controlling it or by systematic variation in order to determine its influence on visual processing.

Wachiowiak (1971) believes firmly that children and adolescents cannot properly attend to visual tasks in art while verbalizing or socializing. Both he and Greenberg (1970) maintain that attention and concentration are essential to the productive use of any drawing period and are the keys to quality in children's art. Greenberg feels that children need quiet time for thinking during art and that teachers who verbalize constantly probably interfere with their students' concentration. Linderman and Herberholz (1974) recognize the effectiveness of a global-at-attention stance of open perception whereby children learn to sort and classify a wide variety of stimuli instead of selecting a few for their attention and closing out the rest. They caution, however, that this sorting process should not be a verbal one for children, but should be accomplished as much as possible through sensory experience without constant resort to word descriptors.

Teachers of adult drawing students also note the necessity to control verbal influences. Simmons and Winer (1972) and Edwards (1979) recommend silence during the drawing session for their adult students. Simmons and Winer advocate a period of focussing in silence before commencing a drawing. All feel that drawing is mainly a wordless process. Edwards argues that
failure to shift from a verbal to a visual mode of thinking is the greatest obstacle to achieving deep perception and prevents the acquisition of drawing skills. She feels that the key to learning to draw is in setting up conditions which allow students to make the mental shift from verbal to non-verbal ways of processing information. These conditions must involve the teacher’s inhibiting of facile, verbal responses to visual stimuli by presenting the student with exercises which can most easily be processed only visually and for which there is no quick linguistic response. These might include drawing an object from an unfamiliar viewpoint or using blind contour drawing techniques. Everything possible should be done to discourage verbal thought and exchange during drawing sessions.

If children are going to learn to draw, it seems necessary for them to receive instruction before the onset of adolescence at which time their natural artistic development seems to decline. Because art rooms where children are asked to learn to draw are seldom quiet places, and because there is evidence that children are being hampered in their ability to function visually by verbal and linguistic aspects of their education, an examination of the variable of language in the drawing process is of interest to art educators and, as such, has prompted this study.

The argument presented so far is that cognitive growth in children is enhanced through visual as well as verbal developmental experiences associated with the processes and products of drawing. Another basic affirmation is that experiences which promote visual concentration and attention are necessary to attaining successively deeper levels of perceptual awareness and that talking can inhibit visual attention to the detriment of achieving these levels. Because the ability to draw from direct observation depends heavily on the ability to attend visually, it is instructive
to examine the factors which interfere with visual attention, such as talking.

Evidence has been offered to support the view that despite theoretical differences among scholars regarding the reasons for the decline in adolescent drawing skill, there is agreement that this decline coincides with the beginning of adolescence at a time when the verbal mode of processing information has become dominant, and that more needs to be known about the relationship between verbal and visual information processing. Useful approaches to the problem would be to examine how verbal and visual operations function separately, how they work together and what inhibitory effects, if any, they have on each other. In an effort to supply a small empirical basis for examining these relationships, this study has been designed to focus on the variable of peer talking on the drawing process in the art room of a reasonably average population of grade seven students.
Chapter 2

DESIGN OF THE STUDY

Four classes of grade seven students in Vancouver, British Columbia participated in a 10 week drawing study to explore the effects on their drawing of talking among peers in the art room.

Population

A total of 110 grade seven students (52 boys and 58 girls) whose mean age was 12 years and 5 months participated in the study. All but 17 students had attended the same school or its annex since kindergarten and none was new to the school this year. One new student did join the group mid-way, but left the school before the end of the project. The elementary school is in a stable, predominantly caucasian area and only one student did not have English as a first language.

Procedure

During the 10 week study, each class had one 80-minute drawing session per week. On Week 1 of the study a Drawing Survey, which included the Goodenough-Harris Draw A Person Test (in Harris, 1963), was given to all classes (see Appendix A). The purposes of the Drawing Survey were to (a) assure equitable division of the classes into two treatment (no-talking) and two control (talking) groups, (b) find out more about the population under study and (c) provide general comparisons regarding changes in attitudes and opinions at the end of the study. The responses to the survey were tabulated, the drawings were scored and the classes were separated as nearly as possible into treatment and control groups on the basis of mean drawing ability.

In order to stimulate interest in the drawing unit, the first instructional activity was given on Week 2 (see Appendix B). No talking was
permitted in the treatment groups when students were drawing from direct observation. Moderate, casual conversation was allowed in the control groups. During Week 3 all classes drew from a live model. These drawings were scored according to a scale developed by the author and based on modified DAPT scoring criteria (see Appendix C).

For the next five weeks all classes took part in the same instructional activities and discussions during which the treatment groups were asked not to talk when drawing while the control groups were permitted to do so. At the end of each session students indicated whether or not they considered their drawings complete or incomplete and filled out a Drawing Evaluation questionnaire (see Appendix D). They were asked to evaluate themselves on the basis of (a) concepts learned, (b) satisfaction with performance and (c) ability to concentrate. Items regarding the ability to concentrate included a subjective evaluation of time passing and the naming of factors which students felt inhibited their concentration.

Observations of student behaviours and attitudes were noted throughout the study by the teacher-as-researcher. The observations were made by scanning all students for approximately ten seconds at the beginning, middle and end of all drawing activities, and were recorded in the Teacher Logs (see Appendix E). Particular note was made of students who were (a) talking and not drawing, (b) talking and drawing, (c) following directions, (d) referring frequently to the model and (e) using divergent approaches to the drawing task. Video tape recordings were also used to record student behaviours during the drawing sessions in Weeks 6 and 7.

During Week 9, students again drew from a live model. The drawings were again scored according to the modified DAPT criteria and scores were compared for individual and mean differences. A second Drawing Survey and
Draw A Person Test were administered to all groups in silence during the 10th week of the study. The responses on the survey and the scores on the DAPT were tabulated and results compared to the initial results for individuals and for groups.

**Instructional Activities**

The drawing activities listed below were chosen to minimize facile, stereotypical responses and to encourage as much close observation and fresh perception as possible.

- **Activity 1** - Chairs (negative space)
- **Activity 2** - Live model (freehand drawing)
- **Activity 3** - Household objects (contour)
- **Activity 4** - Skeleton (volume and gesture)
- **Activity 5** - Bones and pumpkins (tone and volume)
- **Activity 6** - Self portraits (blind contour)
- **Activity 7** - Bicycles (viewfinders)
- **Activity 8** - Live model (freehand drawing)

**Measurement Instruments**

A pilot Drawing Survey and DAPT were given to 102 grade seven students in the same school in June before the study was begun the following September. The purpose of the pilot survey was to find out the range of responses and drawing scores for that group in order to compare it to the study population. In addition to the pilot survey, the following measurement instruments were used:

1. Drawing Survey I and II
2. Goodenough-Harris Draw A. Person Test
3. Modified DAPT criteria for Live Model
4. Student Drawing Evaluations
5. Teacher Logs of observations
Assignment of Subjects

An effort was made to divide the four classes into two nearly equal ability groups. The mean spread on the initial DAPT scores for the classes chosen for the treatment groups was four points (57 and 53). The mean spread was the same for the control groups (54 and 48). Classes were scheduled in the morning before and after recess and were arranged so that each of the groups had one class which met first thing in the morning and one which met right after recess. The classes were numbered by division. The treatment (or no talking) groups were Divisions 1 and 4. Divisions 2 and 3 made up the control (or talking) groups.
Chapter 3

PRESENTATION OF DATA

Data for the study were gathered from four main sources: Drawing Surveys, Teacher Logs, Student Evaluations and Drawing Scores. Pre-treatment profiles were obtained by comparing responses on the Pilot Survey to responses on the first Drawing Survey. This comparison showed little or no difference between the two grade seven populations, but did reveal distinct differences between the responses of boys and girls in each survey. Results, therefore, have been analyzed to show the differences between responses for boys and girls within the treatment and control groups. Data are presented which indicate these differences when they occur.

Effects of the treatment were determined by comparing responses both between and within the control and treatment groups. Because individual classes were subject to quirks of scheduling and interruption which might influence results, it was deemed useful to compare separate results for each class within the control and treatment groups. Data which reflect effects of the treatment, differences between sexes or notable distinctions or similarities among classes or between groups are summarized in the following discussion. Tables of raw scores which indicate these effects and which supplement the discussion are also included.

Data from Drawing Surveys

Drawing Surveys were given at the beginning and end of the study. They yielded information on the grade seven population as a whole, on differences between boys and girls and on changes in attitudes and opinions which occurred during the course of the study. The responses on the first Survey were compared with the responses on a Pilot Drawing Survey given the previous
spring to four classes of grade seven students in the same school. Although the pilot group was older by an average of 7.2 months, responses between the two groups were similar. From this useful, but tentative, comparison, it seems reasonable to assume that maturation was not a sizeable factor in determining response. It might also indicate that the changes in attitudes and opinions which showed up between Drawing Surveys I and II reflected actual differences in the treatment between the two groups rather than increased maturity of the students.

Questions on the Surveys asked students to indicate (a) how they learned to draw, (b) what they felt they drew best, (c) how aware they were of certain specific art elements, and (d) how well they could form mental images. Although total responses on the Pilot Survey and the first Drawing Survey were similar, they both revealed distinct differences between the responses of boys and girls. These differences were most pronounced in (a) ranking of aids in learning to draw, (b) assessed ability in drawing, (c) stated awareness of art elements and (d) stated ability to form mental images. A discussion of the data from the Drawing Surveys is provided below.

Aids to learning to draw. On both surveys boys felt that copying photos and cartoons was the most help in learning to draw. On the first survey girls thought that looking at other people's drawings helped them the most. On the second survey they changed their opinion and ranked drawing from real objects as the most help (see Table 1). There was no appreciable difference between the control and treatment groups' response in either survey (see Table 2). On the second survey, however, there was an increase of those who ranked lessons as an aid to drawing and a decrease of those who reported that they learned most from looking at other people's drawings. The total number of students who felt that drawing from real objects was an aid increased only slightly.
Table 1

Number of Student Responses Ranking Aids in Learning to Draw

<table>
<thead>
<tr>
<th>Aids</th>
<th>Ranked 1st</th>
<th>Ranked 2nd</th>
<th>Ranked 3rd</th>
<th>Ranked 4th</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$P$ $S_1$ $S_2$</td>
<td>$P$ $S_1$ $S_2$</td>
<td>$P$ $S_1$ $S_2$</td>
<td>$P$ $S_1$ $S_2$</td>
</tr>
</tbody>
</table>

Boys

<table>
<thead>
<tr>
<th>Lessons</th>
<th>4 2 9</th>
<th>3 2 7</th>
<th>6 4 3</th>
<th>21 23 20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drawing Real Objects</td>
<td>10 14 8</td>
<td>6 11 16</td>
<td>6 12 12</td>
<td>2 3 1</td>
</tr>
<tr>
<td>Other People's Drawings</td>
<td>16 14 9</td>
<td>11 8 8</td>
<td>7 8 15</td>
<td>5 4 7</td>
</tr>
<tr>
<td>Copying Photos</td>
<td>21 19 17</td>
<td>9 8 7</td>
<td>4 2 8</td>
<td>5 5 8</td>
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<tr>
<td>Totals</td>
<td>51 49 43</td>
<td>29 29 38</td>
<td>23 24 38</td>
<td>33 35 36</td>
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</table>

Girls

<table>
<thead>
<tr>
<th>Lessons</th>
<th>2 4 10</th>
<th>4 6 10</th>
<th>6 7 8</th>
<th>20 21 22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drawing Real Objects</td>
<td>15 16 24</td>
<td>10 11 16</td>
<td>10 11 5</td>
<td>4 3 6</td>
</tr>
<tr>
<td>Other People's Drawings</td>
<td>25 22 7</td>
<td>7 7 12</td>
<td>12 11 20</td>
<td>2 1 9</td>
</tr>
<tr>
<td>Copying Photos</td>
<td>6 8 12</td>
<td>16 15 11</td>
<td>7 7 14</td>
<td>8 9 12</td>
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<tr>
<td>Totals</td>
<td>48 50 53</td>
<td>37 34 49</td>
<td>35 36 47</td>
<td>34 34 49</td>
</tr>
</tbody>
</table>

$P$ = Pilot Study

$S_1$ = Drawing Survey I

$S_2$ = Drawing Survey II
Table 2

Comparison of Group Responses Ranking Aids in Learning to Draw

<table>
<thead>
<tr>
<th>Aids</th>
<th>Ranked 1st</th>
<th>Ranked 2nd</th>
<th>Ranked 3rd</th>
<th>Ranked 4th</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$S_1$</td>
<td>$S_2$</td>
<td>$S_1$</td>
<td>$S_2$</td>
</tr>
<tr>
<td>Control</td>
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<tr>
<td>Lessons</td>
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<td>4</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>Drawing Real Objects</td>
<td>14</td>
<td>19</td>
<td>7</td>
<td>15</td>
</tr>
<tr>
<td>Other People's Drawings</td>
<td>19</td>
<td>6</td>
<td>9</td>
<td>15</td>
</tr>
<tr>
<td>Copying Photos</td>
<td>12</td>
<td>18</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td>Totals</td>
<td>38</td>
<td>47</td>
<td>31</td>
<td>46</td>
</tr>
<tr>
<td>Treatment</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Lessons</td>
<td>4</td>
<td>10</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Drawing Real Objects</td>
<td>16</td>
<td>14</td>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td>Other People's Drawings</td>
<td>17</td>
<td>19</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>Copying Photos</td>
<td>15</td>
<td>13</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Totals</td>
<td>52</td>
<td>44</td>
<td>39</td>
<td>35</td>
</tr>
</tbody>
</table>

$S_1$ = Drawing Survey I

$S_2$ = Drawing Survey II
Ability to draw. On Survey II boys indicated most frequently that they were fairly good at drawing cartoon characters, mountains and landscapes, guns and tanks, battle scenes and space scenes. They indicated most frequently, as they had on Survey I, that they were not good at drawing everyday objects, clothes and fashion design, horses, people or faces (side view). This was not significantly different from the first survey where they indicated that they drew best planes or boats, battle scenes, cartoon characters and space scenes.

Girls on the second survey responded most frequently that they were good at drawing mountains and landscapes, cartoon characters, trees and flowers, faces (front view) and clothes and fashion design while on the first survey they felt they drew everyday objects, trees and flowers, mountains and landscapes and cartoon characters best. They indicated on both surveys that they felt they were not good at drawing guns and tanks, battle scenes, planes or boats, cars and trucks or machines.

Four of the categories in which the boys felt they drew best, the girls felt they drew worst. In only one of the girls' best categories (fashion) did boys indicate they drew worst. Cartoon characters was the one category in which both boys and girls felt they drew well.

By the end of the study there was a marked increase in the number of items that students felt they were able to draw well and a decrease in the number they felt they drew poorly (see Tables 3 and 4). All classes except Division 1 (treatment) showed an increase in the number of items students felt they could draw fairly well (see Table 5). The control group was responsible for the greatest increase in indicated ability to draw items fairly well. The treatment group did not reflect much change between Surveys I and II.
Table 3

Self Assessment of Ability to Draw Items Well -
Comparison of Boys' Responses on First and Second Drawing Survey

<table>
<thead>
<tr>
<th>Items</th>
<th>Very Well S1</th>
<th>S2</th>
<th>Average S1</th>
<th>S2</th>
<th>Not Very Well S1</th>
<th>S2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Space Scenes</td>
<td>13</td>
<td>16</td>
<td>29</td>
<td>25</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Trees and Flowers</td>
<td>4</td>
<td>2</td>
<td>23</td>
<td>24</td>
<td>23</td>
<td>21</td>
</tr>
<tr>
<td>Mountains and Landscape</td>
<td>9</td>
<td>17</td>
<td>24</td>
<td>15</td>
<td>17</td>
<td>16</td>
</tr>
<tr>
<td>Cartoon Characters</td>
<td>15</td>
<td>18</td>
<td>20</td>
<td>22</td>
<td>15</td>
<td>8</td>
</tr>
<tr>
<td>Battle Scenes</td>
<td>17</td>
<td>16</td>
<td>17</td>
<td>23</td>
<td>16</td>
<td>9</td>
</tr>
<tr>
<td>Monsters</td>
<td>12</td>
<td>14</td>
<td>17</td>
<td>19</td>
<td>21</td>
<td>14</td>
</tr>
<tr>
<td>Guns and Tanks</td>
<td>14</td>
<td>17</td>
<td>21</td>
<td>19</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>Buildings</td>
<td>11</td>
<td>14</td>
<td>18</td>
<td>25</td>
<td>21</td>
<td>9</td>
</tr>
<tr>
<td>Everyday Objects</td>
<td>5</td>
<td>10</td>
<td>22</td>
<td>16</td>
<td>23</td>
<td>22</td>
</tr>
<tr>
<td>Clothes, Fashion</td>
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<td>3</td>
<td>6</td>
<td>11</td>
<td>42</td>
<td>34</td>
</tr>
<tr>
<td>Faces - Side View</td>
<td>2</td>
<td>3</td>
<td>22</td>
<td>22</td>
<td>26</td>
<td>23</td>
</tr>
<tr>
<td>Faces - Front View</td>
<td>6</td>
<td>5</td>
<td>20</td>
<td>21</td>
<td>24</td>
<td>20</td>
</tr>
<tr>
<td>People</td>
<td>5</td>
<td>8</td>
<td>13</td>
<td>14</td>
<td>31</td>
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<td>Horses</td>
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<td>3</td>
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<td>Other Animals</td>
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<td>6</td>
<td>16</td>
<td>18</td>
<td>31</td>
<td>19</td>
</tr>
<tr>
<td>Planes or Boats</td>
<td>16</td>
<td>20</td>
<td>20</td>
<td>21</td>
<td>14</td>
<td>7</td>
</tr>
<tr>
<td>Cars, Trucks, Machines</td>
<td>13</td>
<td>15</td>
<td>23</td>
<td>23</td>
<td>14</td>
<td>10</td>
</tr>
</tbody>
</table>

Totals 151 187 321 330 377 285

+36 +9 -92
Table 4

Self Assessment of Ability to Draw Items Well -
Comparison of Girls' Responses on First and Second Drawing Survey

<table>
<thead>
<tr>
<th>Items</th>
<th>Very Well</th>
<th>Average</th>
<th>Not Very Well</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$S_1$</td>
<td>$S_2$</td>
<td>$S_1$</td>
</tr>
<tr>
<td>Space Scenes</td>
<td>3</td>
<td>4</td>
<td>17</td>
</tr>
<tr>
<td>Trees and Flowers</td>
<td>20</td>
<td>21</td>
<td>29</td>
</tr>
<tr>
<td>Mountains and Landscape</td>
<td>17</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Cartoon Characters</td>
<td>17</td>
<td>25</td>
<td>23</td>
</tr>
<tr>
<td>Battle Scenes</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Monsters</td>
<td>3</td>
<td>9</td>
<td>20</td>
</tr>
<tr>
<td>Guns and Tanks</td>
<td>1</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Buildings</td>
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<td>10</td>
<td>29</td>
</tr>
<tr>
<td>Everyday Objects</td>
<td>5</td>
<td>8</td>
<td>35</td>
</tr>
<tr>
<td>Clothes, Fashion</td>
<td>6</td>
<td>16</td>
<td>25</td>
</tr>
<tr>
<td>Faces - Side View</td>
<td>7</td>
<td>14</td>
<td>24</td>
</tr>
<tr>
<td>Faces - Front View</td>
<td>8</td>
<td>17</td>
<td>25</td>
</tr>
<tr>
<td>People</td>
<td>6</td>
<td>12</td>
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</tr>
<tr>
<td>Horses</td>
<td>7</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>Other Animals</td>
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<td>24</td>
</tr>
<tr>
<td>Planes or Boats</td>
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<td>18</td>
</tr>
<tr>
<td>Cars, Trucks, Machines</td>
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<td>+58</td>
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<tr>
<td>-</td>
<td></td>
<td></td>
<td>-66</td>
</tr>
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</table>
Table 5

Changes in Assessed Ability to Draw Items Well

<table>
<thead>
<tr>
<th>Groups</th>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Treatment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Division 1</td>
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<td>-2</td>
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<td>Division 4</td>
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<td>+20</td>
</tr>
<tr>
<td>Total</td>
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<td>+6</td>
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<tr>
<td><strong>Control</strong></td>
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<td></td>
</tr>
<tr>
<td>Division 2</td>
<td>+9</td>
<td>+28</td>
</tr>
<tr>
<td>Division 3</td>
<td>+22</td>
<td>+18</td>
</tr>
<tr>
<td>Total</td>
<td>+31</td>
<td>+46</td>
</tr>
</tbody>
</table>
Awareness of art elements. At the end of the study more girls than boys in all classes reported more frequent awareness of specific art elements such as source of light, negative space, size relationships and tonal values as they drew (see Table 6). In the control groups, 52 students reported that they were very often aware of these elements compared to 36 students in the treatment groups.

Both treatment and control groups reported about the same number of students who were sometimes aware of these elements. However, the control groups recorded more responses (73) than the treatment groups (56) from students who said they were hardly ever aware of these elements (see Table 7).

Comparisons between the two Drawing Surveys indicated that the greatest amount of change occurred in (a) reported ability to form mental images, (b) attitudes toward the importance of practice in learning to draw, (c) attitudes toward the importance of concentration while drawing and (d) degree of discouragement in drawing.

Ability to form mental images. There was an increase of 16 in the number of students who could form a clear mental picture of an item at the end of the study. Boys and girls made equal gains although more girls (40) than boys (32) reported that they could picture a mental image clearly. The number of students who reported that they could not form a mental picture of an object at all increased by one.

Importance of practice. Only 24% of the students at the beginning of the study felt that practice was very important in learning to draw. At the end of the 10 weeks this number had increased to 59% for all classes. This increase was fairly evenly divided between groups and between boys and girls.
Table 6

Number of Responses Indicating Awareness of
Art Elements for Boys and Girls

<table>
<thead>
<tr>
<th>Art Elements</th>
<th>Often Aware S₁</th>
<th>S₂</th>
<th>Sometimes Aware S₁</th>
<th>S₂</th>
<th>Seldom Aware S₁</th>
<th>S₂</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Boys</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source of Light</td>
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<td>1</td>
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<td>23</td>
<td>27</td>
<td>24</td>
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<tr>
<td>Negative Space</td>
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<td>6</td>
<td>1</td>
<td>21</td>
<td>48</td>
<td>20</td>
</tr>
<tr>
<td>Size Relationships</td>
<td>11</td>
<td>16</td>
<td>13</td>
<td>21</td>
<td>26</td>
<td>11</td>
</tr>
<tr>
<td>Tonal Values</td>
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<td>6</td>
<td>5</td>
<td>26</td>
<td>44</td>
<td>17</td>
</tr>
<tr>
<td>Totals</td>
<td>12</td>
<td>29</td>
<td>22</td>
<td>91</td>
<td>165</td>
<td>72</td>
</tr>
<tr>
<td><strong>Girls</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source of Light</td>
<td>1</td>
<td>3</td>
<td>12</td>
<td>33</td>
<td>37</td>
<td>15</td>
</tr>
<tr>
<td>Negative Space</td>
<td>0</td>
<td>11</td>
<td>6</td>
<td>23</td>
<td>44</td>
<td>20</td>
</tr>
<tr>
<td>Size Relationships</td>
<td>14</td>
<td>28</td>
<td>10</td>
<td>16</td>
<td>26</td>
<td>9</td>
</tr>
<tr>
<td>Tonal Values</td>
<td>13</td>
<td>17</td>
<td>9</td>
<td>22</td>
<td>38</td>
<td>15</td>
</tr>
<tr>
<td>Totals</td>
<td>28</td>
<td>59</td>
<td>37</td>
<td>94</td>
<td>145</td>
<td>59</td>
</tr>
</tbody>
</table>
### Table 7

Number of Responses Indicating Awareness of Art Elements for Treatment and Control Groups

<table>
<thead>
<tr>
<th>Art Elements</th>
<th>Often Aware</th>
<th></th>
<th>Sometimes Aware</th>
<th></th>
<th>Seldom Aware</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$S_1$</td>
<td>$S_2$</td>
<td>$S_1$</td>
<td>$S_2$</td>
<td>$S_1$</td>
<td>$S_2$</td>
</tr>
<tr>
<td><strong>Treatment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source of Light</td>
<td>1</td>
<td>1</td>
<td>8</td>
<td>27</td>
<td>49</td>
<td>18</td>
</tr>
<tr>
<td>Negative Space</td>
<td>0</td>
<td>8</td>
<td>4</td>
<td>24</td>
<td>45</td>
<td>17</td>
</tr>
<tr>
<td>Size Relationships</td>
<td>8</td>
<td>16</td>
<td>15</td>
<td>25</td>
<td>21</td>
<td>6</td>
</tr>
<tr>
<td>Tonal Values</td>
<td>1</td>
<td>11</td>
<td>7</td>
<td>22</td>
<td>42</td>
<td>15</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>10</td>
<td>36</td>
<td>34</td>
<td>98</td>
<td>157</td>
<td>56</td>
</tr>
<tr>
<td><strong>Control</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source of Light</td>
<td>0</td>
<td>3</td>
<td>7</td>
<td>29</td>
<td>35</td>
<td>21</td>
</tr>
<tr>
<td>Negative Space</td>
<td>0</td>
<td>9</td>
<td>3</td>
<td>22</td>
<td>47</td>
<td>23</td>
</tr>
<tr>
<td>Size Relationships</td>
<td>17</td>
<td>28</td>
<td>8</td>
<td>12</td>
<td>31</td>
<td>14</td>
</tr>
<tr>
<td>Tonal Values</td>
<td>3</td>
<td>12</td>
<td>8</td>
<td>26</td>
<td>40</td>
<td>15</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>20</td>
<td>52</td>
<td>26</td>
<td>89</td>
<td>154</td>
<td>73</td>
</tr>
</tbody>
</table>

$S_1$ = Drawing Survey I

$S_2$ = Drawing Survey II
Importance of concentration. The number of students who thought that concentration was important when drawing from observation also increased for all classes. In the first Drawing Survey only 30% of the students felt concentration was important whereas 80% of them thought it was in the second survey. There did not seem to be any clear difference between the responses of boys and girls or between treatment and control groups (see Table 8).

Discouragement. The number of students who reported they were often discouraged with their drawings fell slightly by the end of the study for the treatment groups. The control groups, however, reported two more students who were often discouraged with their drawing at the end of the study than at the beginning (see Table 9). This difference was reversed in the next category as the treatment groups reported two fewer students who were hardly ever discouraged and the control reported a gain of four students who said they hardly ever became discouraged with their drawing.

Data from Teacher Logs and Observations

Throughout the study observations of student behaviours were noted in the Teacher Logs. Particular attention was given to (a) students who were talking and not drawing from observation, (b) students who were talking and drawing from observation at the same time, (c) students who were not following directions, (d) students who did and did not refer to the model or object within 10 seconds of being observed, (e) the number of incomplete drawings, (f) the number of second starts, (g) differing approaches to the drawing task and (h) teacher satisfaction and attitudes toward the class.

Recorded incidence of talking and not drawing from observation. Students who were talking during the routine 10 second scan of student behaviours at the beginning, middle and end of each drawing activity were
### Table 8

Number of Responses Indicating Relative Importance of Concentration While Drawing

<table>
<thead>
<tr>
<th>Groups</th>
<th>Very Important</th>
<th>Somewhat Important</th>
<th>Not Important</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$S_1$</td>
<td>$S_2$</td>
<td>$S_1$</td>
</tr>
<tr>
<td><strong>Treatment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Division 1</td>
<td>7</td>
<td>20</td>
<td>12</td>
</tr>
<tr>
<td>Division 4</td>
<td>9</td>
<td>23</td>
<td>13</td>
</tr>
<tr>
<td>Total</td>
<td>16</td>
<td>43</td>
<td>25</td>
</tr>
<tr>
<td>$+$</td>
<td>+27</td>
<td>-11</td>
<td>-7</td>
</tr>
<tr>
<td><strong>Control</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Division 2</td>
<td>7</td>
<td>22</td>
<td>17</td>
</tr>
<tr>
<td>Division 3</td>
<td>8</td>
<td>24</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>46</td>
<td>28</td>
</tr>
<tr>
<td>$+$</td>
<td>+31</td>
<td>-21</td>
<td>-12</td>
</tr>
</tbody>
</table>

$S_1$ = Drawing Survey I  

$S_2$ = Drawing Survey II
Table 9

Number of Responses Reporting Discouragement in Drawing

<table>
<thead>
<tr>
<th>Groups</th>
<th>Often Discouraged</th>
<th>Hardly Ever</th>
<th>Never Discouraged</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$S_1$</td>
<td>$S_2$</td>
<td>$S_1$</td>
</tr>
<tr>
<td>Treatment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Division 1</td>
<td>14</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Division 4</td>
<td>15</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>23</td>
<td>22</td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Division 2</td>
<td>13</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>Division 3</td>
<td>18</td>
<td>13</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>31</td>
<td>33</td>
<td>17</td>
</tr>
</tbody>
</table>

$S_1$ = Drawing Survey I

$S_2$ = Drawing Survey II
assessed according to whether they were talking and, at the same time, drawing from observation. Out of 315 observations of students' talking, 301 were made of students who were talking but who were not, at the same time, drawing (see Table 10).

**Recorded incidence of talking and drawing.** Only 14 out of the 315 observations of students' talking noted students who were talking and drawing at the same time (see Table 11). Five of these notations occurred in one class during a memory drawing exercise, two occurred while students dotted freckles on a drawing of a live model and made random marks for the hair and seven occurred while students were colouring in negative spaces with oil pastels during the first instructional activity.

**Incidence of failure to follow directions.** In each of the drawing activities, with the exception of the live models, a specific technique was emphasized. Students were asked to use outlines of negative space, blind contours, gesture, tonal values, contour and continuous contour lines and viewfinders. Instances were recorded whenever directions were not being followed during the scan (see Table 12). Out of 251 instances, students in the control group failed to follow directions in 146 cases while students in the treatment groups failed to follow them in 105 of the cases.

**Incidence of failure to refer to model or object.** During the routine scans of the classroom, students were observed for approximately 10 seconds to see if they referred to the model or the object in that interval. A total of 349 notations were made. The control groups failed to observe the model in 214 (or 62%) of the cases and the treatment groups failed in 135 (or 39%) of the cases (see Table 13).

**Incidence of incomplete drawings.** At the end of each session students were asked to indicate whether their drawings were complete or incomplete.
### Table 10

Recorded Incidence of Talking and Not Drawing from Observation

<table>
<thead>
<tr>
<th>Drawing Activity</th>
<th>Treatment</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chairs</td>
<td>6</td>
<td>28</td>
</tr>
<tr>
<td>Live Model I</td>
<td>4</td>
<td>40</td>
</tr>
<tr>
<td>Household Objects</td>
<td>9</td>
<td>49</td>
</tr>
<tr>
<td>Skeleton</td>
<td>12</td>
<td>49</td>
</tr>
<tr>
<td>Bones and Pumpkins</td>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td>Bicycle - Memory</td>
<td>3</td>
<td>34</td>
</tr>
<tr>
<td>- Viewfinder</td>
<td>8</td>
<td>26</td>
</tr>
<tr>
<td>Self Portrait</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Live Model II</td>
<td>17</td>
<td>30</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>63</strong></td>
<td><strong>270</strong></td>
</tr>
</tbody>
</table>
Table 11
Recorded Incidence of Talking and Drawing

<table>
<thead>
<tr>
<th>Drawing Activity</th>
<th>Treatment</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chairs</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Live Model I</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Household Objects</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Skeleton</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bones and Pumpkins</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bicycle - Memory</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Viewfinder</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Self Portrait</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Live Model II</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2</strong></td>
<td><strong>12</strong></td>
</tr>
</tbody>
</table>
Table 12

Recorded Incidence of Failure to Follow Directions

<table>
<thead>
<tr>
<th>Drawing Instruction</th>
<th>Treatment</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outline of Negative Space</td>
<td>11</td>
<td>15</td>
</tr>
<tr>
<td>Continuous Contour</td>
<td>42</td>
<td>43</td>
</tr>
<tr>
<td>Gesture and Volume</td>
<td>20</td>
<td>35</td>
</tr>
<tr>
<td>Blind Contour</td>
<td>19</td>
<td>27</td>
</tr>
<tr>
<td>Use of Viewfinder</td>
<td>13</td>
<td>26</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>105</strong></td>
<td><strong>146</strong></td>
</tr>
</tbody>
</table>
Table 13

Recorded Incidence of Failure to Refer to Model or Object During Routine 10-Second Scan

<table>
<thead>
<tr>
<th>Drawing Activity</th>
<th>Treatment</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chairs</td>
<td>9</td>
<td>23</td>
</tr>
<tr>
<td>Live Model I</td>
<td>36</td>
<td>47</td>
</tr>
<tr>
<td>Household Objects</td>
<td>26</td>
<td>36</td>
</tr>
<tr>
<td>Skeleton</td>
<td>25</td>
<td>33</td>
</tr>
<tr>
<td>Bones and Pumpkins</td>
<td>11</td>
<td>13</td>
</tr>
<tr>
<td>Bicycle - Viewfinder</td>
<td>9</td>
<td>27</td>
</tr>
<tr>
<td>Live Model II</td>
<td>19</td>
<td>25</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>135</strong></td>
<td><strong>214</strong></td>
</tr>
</tbody>
</table>
The incidence of incomplete drawings was over four times greater for the control groups (131) than it was for the treatment groups (32).

**Incidence of second starts.** The number of students who required a clean sheet of paper in order to make a second start on their drawing was recorded. The control groups made 28 clean-sheet second starts compared to 4 for the treatment groups.

**Differing approaches to the drawing task.** The majority of students proceeded to draw in a logical top to bottom or left to right series of steps. They built up their drawings in a part-by-part sequence by first outlining a section and then filling in the details. There were 24 observed exceptions to this, all occurring during the drawing of the live models, in which students first planned the entirety of their drawings before they went back and completed the details. The treatment and control groups each produced an equal number of students who worked in this manner.

**Teacher attitudes.** Teacher attitudes toward the class and towards individuals in the class were recorded weekly in the Teacher Logs. The attitudes, when analyzed, fell mainly into two categories: satisfaction and dissatisfaction.

Teacher satisfaction was reflected in remarks regarding the following:

1. Purposeful, industrious attitude toward the task
2. Attention and close observation
3. Completed tasks
4. Evidence of effort and application, time required to settle to task
5. Attempts to follow directions and try new drawing techniques and strategies
6. Increase in ability to sustain concentration
7. Evidence of student satisfaction, participation and involvement
Teacher dissatisfaction resulted from the following types of observations:

1. Frivolous, purposeless attitudes toward the task
2. Lazy or facile observations of object or model, little effort indicated
3. Incompleted tasks
4. Wasting time or materials, slow to settle, starting over
5. Failure to try new strategies or follow directions
6. Inability to sustain concentration for increased lengths of time
7. Noise level too high for teacher to converse with students at normal pitch

There were twice as many remarks indicating teacher satisfaction with the treatment groups as with the control groups. Out of 127 remarks analyzed for the no-talking classes, 72% of them indicated teacher satisfaction and 28% reflected dissatisfaction. For the talking classes, 31% of the 143 remarks indicated teacher satisfaction and 69% of them showed teacher dissatisfaction (see Table 14).

Data from Drawing Evaluations

At the end of each drawing session a questionnaire was given to students who were asked to evaluate themselves on the basis of (a) concepts learned, (b) satisfaction and dissatisfaction with their work and (c) ability to concentrate.

Concepts learned. There was little difference among students in the control and treatment groups who reported that they understood the concepts very well, fairly well and not very well. The control groups, however, were unable to apply these concepts as frequently as the treatment
Table 14

Recorded Frequency of Remarks Reflecting Teacher Satisfaction and Dissatisfaction

<table>
<thead>
<tr>
<th>Teacher Attitude</th>
<th>Treatment</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfaction</td>
<td>91</td>
<td>45</td>
</tr>
<tr>
<td>Dissatisfaction</td>
<td>36</td>
<td>98</td>
</tr>
<tr>
<td>Total Remarks</td>
<td>127</td>
<td>143</td>
</tr>
</tbody>
</table>
groups. Out of a total of 194 failures to apply concepts, the talking groups accounted for 58% of the failures (112) and the no-talking groups provided 42% of the failures (82). Failures were divided almost equally between boys and girls in both groups.

Satisfaction with performance. Students were often asked on the Drawing Evaluation to indicate what they particularly liked about their drawing for that day. An answer of "nothing" was recorded as an indication of dissatisfaction. An equal number of students in the control and treatment groups replied that they liked "everything," but almost twice as many students in the control groups (29) expressed dissatisfaction with their performance as opposed to 15 in the treatment groups who indicated dissatisfaction with their work.

Ability to concentrate. The percentage of students who said that they could concentrate very well was slightly higher in the treatment groups. In those groups 41% reported that they could concentrate very well while 38% of the students in the control groups reported concentrating very well. An equal percentage of students in all groups reported that they were able to concentrate fairly well while 11% of the control groups as opposed to 8% of the treatment groups reported poor concentration. The total number of students reporting poor concentration was 83. Of this number, the control groups contributed 58% of the poor responses (47) and the treatment groups contributed 43% or 36 responses.

The factors which students reported as inhibitors of concentration fell into the following categories (see Table 15):

1. Talking
2. Distractions by friends or fellow students
3. Classroom noise
Table 15

Incidence of Reported Factors Inhibiting Concentration

<table>
<thead>
<tr>
<th>Inhibiting Factors</th>
<th>Treatment</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Talking</td>
<td>79</td>
<td>72</td>
</tr>
<tr>
<td>People Disturbances</td>
<td>29</td>
<td>10</td>
</tr>
<tr>
<td>Class Noise</td>
<td>22</td>
<td>36</td>
</tr>
<tr>
<td>Lack of Noise</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Ability Frustrations</td>
<td>44</td>
<td>70</td>
</tr>
<tr>
<td>Physical Frustrations</td>
<td>15</td>
<td>39</td>
</tr>
<tr>
<td>Personal Reasons</td>
<td>23</td>
<td>8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>224</strong></td>
<td><strong>235</strong></td>
</tr>
</tbody>
</table>
4. Lack of noise
5. Ability frustrations
6. Physical frustrations
7. Personal reasons

Talking in the classroom by peers and frustrations in drawing ability ranked highest as factors inhibiting concentration in all groups. Talking ranked slightly higher as a factor in the treatment groups (35%) than in the control groups (31%), while frustration with ability was highest in the control groups (30%) and lower (20%) in the treatment groups. There were 315 responses from students who reported that nothing had interfered with their concentration. Of these responses 45% belonged to the control or talking groups and 55% belonged to the treatment or no-talking groups. The treatment groups were the only ones to report lack of noise as a factor inhibiting concentration. This factor was cited 12 times or in 5% of the total responses for that group.

As an indication of involvement and concentration, students were asked each week for their subjective opinions on how quickly or slowly time passed during the drawing session (see Table 16). Although the talking groups indicated more frequently that time passed quickly, the no-talking groups reported more frequently that they were unaware of time passing. All groups reported almost equally that time passed slowly, but the frequency of this response was was much lower than for the other two categories.

Data from Drawing Scores

The Draw A Person Tests and the drawings of the live models were scored at the beginning and again at the end of the study in order to gain some measure of ability so that the groups could be equitably
Table 16

Frequency of Responses Indicating Subjective Evaluation of
Time Passing

<table>
<thead>
<tr>
<th>Passage of Time</th>
<th>Treatment</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quickly</td>
<td>83</td>
<td>124</td>
</tr>
<tr>
<td>Slowly</td>
<td>75</td>
<td>68</td>
</tr>
<tr>
<td>Not Aware of Time Passing</td>
<td>134</td>
<td>100</td>
</tr>
</tbody>
</table>
divided, consistency of scoring procedures could be tested, and comparisons could be made to see what effects, if any, the variable of no talking had on drawing skill.

**Draw A Person Tests.** Comparisons of mean and median scores for all classes on the first Draw A Person Test showed little initial difference in the drawing ability of the four classes (see Tables 17 and 18). Division 3 (talking) scored lowest on both DAPT, but made the greatest gain in scores during the study. Between the first and the second DAPT there was a net mean gain of +4 for the talking groups and +3 for the no-talking groups, but this was not sufficient to constitute a real difference between the treatment and control groups.

**Live model drawing scores.** The range of scores on the live model drawings was consistent with the DAPT scores and little initial difference was indicated between classes. Division 3 (control) again had slightly lower mean scores on both sets of drawings than the other classes, but had the same median scores as two of the other divisions. All classes made consistent increases in their mean and median scores on the second drawing and there was no appreciable difference between the control and treatment groups.
### Table 17

Comparisons of Mean Scores on Draw A Person Tests and
On Live Model Drawings

<table>
<thead>
<tr>
<th>Group</th>
<th>DAPT #1</th>
<th>DAPT #2</th>
<th>Model I</th>
<th>Model II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Division 1</td>
<td>53</td>
<td>54</td>
<td>51</td>
<td>53</td>
</tr>
<tr>
<td>Division 4</td>
<td>57</td>
<td>59</td>
<td>49</td>
<td>52</td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Division 2</td>
<td>55</td>
<td>55</td>
<td>48</td>
<td>50</td>
</tr>
<tr>
<td>Division 3</td>
<td>49</td>
<td>53</td>
<td>45</td>
<td>47</td>
</tr>
</tbody>
</table>
Table 18

Comparisons of Median Scores on Draw-A-Person Tests and On Live Model Drawings

<table>
<thead>
<tr>
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An examination of the findings from data obtained on the Drawing Surveys, the Teacher Logs, the Drawing Evaluations and the drawing scores will be presented and further discussed in this section.

**Drawing Surveys**

In addition to finding out more about the population under study, a comparison of the Drawing Surveys given at the beginning and end of the ten week period provided means for detecting changes in attitudes and opinions which occurred during the study. The results of the comparison and the changes which occurred will be discussed below.

**Aids in learning to draw.** Results indicated that copying and imitation were important factors in drawing at this age and for this population. Students felt that they did not rely on direct observation of people and objects when drawing, but on copying photos and on the previously developed conventions of other people's drawings. This conforms to the Wilsons' idea (1975) that all children learn to draw objects primarily through imitating other children's drawings and by copying media representations. Thus, drawing conventions are passed from siblings, peers and predecessors to succeeding generations. They reject Arnheim's view (1969) that drawing of objects is based first on observation and then on invention of abstract mental equivalences. The Wilsons feel that imagery sources for high school students are all borrowed from other students and that there is no new invention of visual symbols after the age of eight or nine years.

The boys maintained their position on copying throughout the study. The girls, however, indicated that instruction and practice in drawing real
objects were more important to them at the end of the study than at the beginning. This difference could be caused by boys' preferences for drawing space scenes, battle scenes and guns and tanks which are not normally accessible from direct observation and which are sometimes considered inappropriate subjects in school art programmes. Girls, on the other hand, preferred to draw subjects which are more often available for direct observation such as people, fashion, trees and flowers. Perhaps a drawing programme for boys at this age should recognize their preferences for space age machinery and weaponry and include models of such objects to observe when drawing.

**Estimated ability in drawing.** Again, there were marked differences between the boys and girls in what they each felt they were able to draw best. What boys felt they drew best, girls felt they drew worst, with the single exception of cartoons. The affinity for drawing cartoons was very pronounced among both boys and girls. In informal discussion students volunteered that they liked to draw cartoons because they were easy and could be made to look like "the real thing." Recognition was instant among their friends and, in the event that a cartoon was not turning out right, difficult parts could be traced or a friend could "fix it up." Students who were considered good at drawing cartoons enjoyed a certain prestige and were considered artistic by their friends.

It would be interesting to find out at what age this penchant for cartooning begins and until what age it lasts. Certainly students in this study were searching to enlarge their repertoire of cartoon conventions. Because the conventions used in drawing cartoons have already been reduced to two dimensions, students do not have to solve the problem of finding graphic equivalents for three dimensional objects. Cartoons seem to satisfy
the pre-adolescent's desire for accuracy in representation while allowing him to avoid the more difficult task of finding these equivalents. Students may tire of cartoon copying once they have mastered it and be more reluctant than ever to return to the initial, clumsy stages of learning to draw objects in three dimensional space.

The Wilsons (1975) feel that when young people outgrow childhood ways of drawing they need to be taught new conventions which can be elaborated on and re-combined ad infinitum. Perhaps, instead of ignoring the pre-adolescent's desire for reproducible conventions, an art programme for students at this age should emphasize them and help expand the student's stock of conventions so that when he becomes bored with the cartoon image, he will not find his store empty and stop drawing altogether.

Although both boys and girls indicated greater confidence in the number of items they thought they could draw well by the end of the study, the difference between them and the subjects they thought they could draw well and draw poorly remained markedly consistent. Boys continued to feel that they drew people poorly and did not show as much confidence in their average ability to draw everyday objects as girls did. These differences in real or imagined ability between boys and girls at this age should be considered in any future research on this subject.

By the end of the study all of the divisions had increased estimates of their ability to draw well except Division 1 (treatment) which reported a net loss in estimated ability to draw items well. Owing to a missed session, this class was one week behind the others for the last two weeks of the study. This meant that they were asked to complete the second Drawing Survey and to rate their drawing ability after they had received their report cards and had seen the teacher's estimate of their ability.
This seemed to produce a downward tendency in their self evaluations and influenced them to rate themselves "average" instead of "very good" for the majority of items.

**Awareness of art elements.** Another notable difference between boys and girls in this population is their stated awareness of certain elements in drawing such as light source, tonal value, relative size and negative space. On both surveys twice as many girls as boys reported that they were very often aware of these elements. When tested on their application, however, the boys scored as well as the girls. This may be another indicator of girls having more confidence in their drawing at this age than boys, or it may reflect more familiarity with the terms used in art parlance.

**Ability to form mental images.** There was an increase for all divisions in reported ability to form mental images. Whether or not practice in drawing directly from observation improves the ability to form mental images has not been established and deserves further study. All of the boys who said they could not form a mental image had previously been identified at the school as having learning disabilities related to short-term visual memory. These students often had trouble sustaining concentration during the drawing session. The two students in the control groups with this problem talked consistently and seldom finished a drawing, while the student in the treatment group was able to finish six out of eight drawings. None of them was able to draw a bicycle from memory.

Both boys and girls reported equal increases in ability to form clear mental images. It would be interesting to note for future research on imaging whether there are more boys than girls with short-term memory learning disabilities in the school population at large as was the case in this study population.
Importance of practice. The number of students who, by the end of the study, felt that practice was very important in learning to draw had doubled. The initial attitude might have reflected the prevalent practice in art programmes to stress a broad range of art activities over depth of experience in any one of them. Students cannot learn the value of practice if teachers themselves present classes with new art activities each week. There were several times during the latter part of the study when I felt the students were getting tired of drawing. Although this was probably the case at times, when asked which lessons they preferred, students reported as many preferences for lessons late in the study as for lessons earlier on. This indicated a tolerance or resistance to fatigue which is not always obvious to the teacher conducting an in-depth programme.

Importance of concentration. All classes placed higher importance on the necessity to concentrate in learning to draw at the end of the study than they had in the beginning. The fact that only 30% of the students first felt that concentration was very important reflects an attitude toward art and its content that should be of concern to art educators. If paucity of early training has failed to make students aware of the need for either practice or concentration in the art process, it is not surprising that so many choose to neglect the pursuit when they leave elementary school.

Discouragement in drawing. The control or talking groups had 33% more students than the treatment or no-talking groups who reported being often discouraged with their drawing by the end of the study. They also indicated 50% more dissatisfaction with their work on the weekly Drawing Evaluations. The obvious disparity between the treatment and control groups may reasonably be seen as a function of the control variable. Whenever a student in the no-talking groups indicated discouragement by signaling for help, he
was quietly asked to try to find ways to solve his own visual problems. When students in the talking groups became discouraged, they often just gave up, started over or began talking to friends. The incidence of erasing and starting over was much greater for the control classes. Students who persevered and tried to solve their own problems without resorting to peer distraction seemed to respond with a greater degree of satisfaction with their drawing and to have become less discouraged than those who gave up easily and talked to their neighbours.

**Teacher Logs and Observations**

Results of data gathered in the Teacher Logs and observations showed several apparent differences between the control and treatment groups. These differences appeared in regard to (a) talking and not drawing, (b) talking and drawing, (c) following directions, (d) references to model, (e) complete and incomplete drawings, (f) second starts, (g) differing approaches and (h) teacher attitudes.

**Talking and not drawing.** In the majority of observations, when students began talking, they stopped drawing. Notations in the Teacher Logs and videotape evidence consistently confirmed this observation. Conversely, when students stopped talking, they most often began drawing again. The Logs record frequent surprise at how quickly and quietly the control classes settled down to work on a drawing task involving direct observation even without being asked not to talk. The moment that everyone began to draw, there was silence in the room.

There were potential "talkers" in each class. These were students who would rather socialize than draw. In the treatment groups, these students would fidget and try to draw their neighbour's attention to them in some way, but because of the stricture against talking, their neighbours were
reluctant to be drawn into a conversation. Because there was no such stricture in the control classes, the "talkers" could usually manage to involve two or three others at their table in conversation, which eventually weakened the concentration for the entire table and often spread to other tables in the classroom. Almost every time other students became involved in the conversation, their pencils stopped recording marks on their papers.

"Talkers" in the control classes had a high incidence of crumpled papers and second starts. They became easily discouraged with their work and would stop drawing and begin conversing instead of trying to solve their problems. This "discouragement/talking" syndrome produced some interesting and fairly consistent behaviours. The student would first signal his discouragement (with a sigh, slump or exasperated motion of his eraser) and then begin to try to involve those around him in a conversation. At the end of the conversation when the others had gone back to their drawings, he would look at the drawings in progress around him, crumple his paper ostentatiously, get a new one and begin a new conversation before settling to the drawing task once again. These delaying tactics, when repeated a few times in an art lesson left little time for actual practice, and seemed to reinforce the student's dissatisfaction with his performance. There were far fewer clean sheet start overs in the treatment groups. Those who did begin again, usually turned their papers over and began again without involving others in their decision, thus losing little actual drawing practice.

Several times during the study when I attempted to make demonstration drawings from direct observation on the blackboard and talk at the same time, I was aware of the difficulty of talking, observing and drawing at the same time. Whenever I decided to emphasize the verbal instructions, the drawing became slightly incoherent and whenever I chose to concentrate on the drawing,
the verbal commentary became somewhat disjointed. The difficulty of talking and drawing from observation at the same time seems to indicate some interference between the two operations. The implications of this possible interference should be examined by art educators interested in teaching drawing skills at every age.

Talking and drawing. Relatively few observations were made of students who were talking and drawing at the same time, and these seemed more related to the type of activity than to the function of the variable. Activities such as colouring in negative spaces and drawing a bicycle from memory which did not require strict observation of a model seemed to encourage more talking while drawing. Students who did talk and draw at the same time tended to use repetitive, random, "doodling" marks on their papers. They dotted freckles, dashed repeated bicycle spokes, coloured in solid dark areas, or made random lines indicating hair texture. In several of the bicycle drawings, students marked randomly while talking, then stopped talking, looked at their papers and erased the whole section they had completed while talking. The incidence of erasing on the memory bicycle was much higher for those students who talked and tried to draw at the same time.

The memory drawing of the bicycle was the one activity of the whole study where the control classes never completely settled quietly to task. There was always some murmuring, although, at first, it seemed to take the form of communal efforts to recall certain details of bicycles. There was a tendency for students in the control groups who could not remember details to give up and begin talking to friends about unrelated subjects. This was in sharp contrast to the treatment classes which settled to work immediately and quietly. They also had trouble remembering details, but showed obvious efforts to recall them by casting their eyes upward, rubbing foreheads and
closing their eyes in thought. The amount of mental effort put forth by the treatment groups in contrast to the control groups suggests that talking may interfere even more with the formation of mental images than with drawing from direct observation.

**Following directions.** Students who talked during class were less likely to follow directions than students who did not. They would often begin the lesson by following directions, but by the second or third scan would have forgotten to keep their pen on the paper or their eye on the model while they drew and would have lapsed into older, familiar ways of drawing. The students, by this age, it seems had developed their own ways of drawing things and were reluctant to try new approaches and strategies. Some of them commented that their drawings would be ruined if they followed a new strategy. They complained that if they followed directions, their pictures would not look as good as those of students who were not following directions.

In order to expose pre-adolescents to new drawing strategies, it seems necessary to first persuade them to abandon their pre-existing approaches and conventions in order to try out new ones. If the acquisition of new strategies is hampered by failure to follow directions when students are allowed to talk, then the relationship between talking and following directions deserves further examination by art educators and drawing instructors.

**References to the model and the object.** The control groups referred less often to the model or the object than the treatment groups. All classes referred with approximately the same frequency during the first scan, but then the talking groups fell off sharply in the frequency of their references. In general, observation decreased as talking increased, and with that increase came more frequent erasures. Students who began drawing again
after a period of conversation would often begin drawing without a preliminary reference to the model or the object. After a few seconds of drawing, they would look at the model and then erase what they had just drawn. The increased erasing presumably resulted from a comparison between the image on paper and the real object which the students found lacking.

The more familiar the object, the fewer observations were made. In the first live model drawing, 80% of the students in all classes stopped referring to the model when drawing details on the hair and clothes. References to unfamiliar objects such as the up-side down man, junk objects and bones continued, in general, until completion of the drawing. The seeming fact that unfamiliarity inspired greater observation may be a result of students' having fewer pre-conceived drawing conventions to fall back on. It may also result from having fewer verbal descriptors to rely on thereby forcing students to gather more visual information.

**Complete and incomplete drawings.** The most evident difference between the treatment and control groups was in terms of production. When talking time was subtracted from drawing time, the control groups finished far fewer pictures than the treatment groups and received demonstrably less practice. The number of completed drawings appeared directly related to the length of time students spent on their work. Some students spent only seven or eight minutes actually drawing during a 20 minute session.

The treatment groups improved their ability to sustain longer periods of concentration each week until both classes could draw with deep attention for 20 minutes at a time without showing signs of restlessness. Restlessness and general talking would usually occur in the control classes within eight to ten minutes. Many students in the no-talking groups increased their practice time by returning to their drawings and working until the bell
after completing the Drawing Evaluation at the end of each session. No students in the control classes returned to their drawings after completing the questionnaire despite having drawings acknowledged to be incomplete. Although these classes spent an average of two minutes less per class filling out the Evaluation questionnaire than the treatment classes, they always spent the remaining time before the bell chatting together.

Differing approaches. Students were tenacious in maintaining conventional, sequential approaches to drawing. The majority of them proceeded to build the whole drawing through a series of steps, completing each detail before going on to the next. Most students started at the top in a figure drawing (although 8 out of 102 preferred to begin with the feet) and drew objects from left to right unless they were left handed. They had trouble in sessions where they were asked to use large gestures or to make a global plan of their entire drawing before going back and completing the details. This might have been caused by the emphasis on contour and the build-up of form by line in the previous exercises. It seemed as if students at this age had less difficulty understanding part to part relationships than they did comprehending the relationships of parts to wholes.

Teacher attitudes. Although I have seldom had more uniformly satisfying classes of youngsters to teach, distinct differences in my attitude towards the two groups showed up in the Teacher Logs. I was continually surprised at how quickly and how quietly the control classes settled to task without being asked not to talk and at how difficult it was to maintain the "no-talking" stricture with the treatment classes while, at the same time, keeping an open, friendly atmosphere in the classroom. This became easier as the weeks passed and, in the end, the business-like atmosphere that prevailed in the treatment classes was more satisfying than the
open, relaxed atmosphere of the control classes.

I found that, although I was frequently pleased at the beginning of a control class with how quickly it settled down to work, I was often disappointed by the end of the class with the results of the drawings. I always hated to see the momentum of a good beginning lost as the talking increased and the quality and production diminished. I could often see a purposeful, industrious attitude toward work erode as the amount of talking increased. The students who talked most seemed to put least effort into their work. I tried to encourage them to work by taking an interest in what they were doing, but was frustrated by the feeling that they would do better if I asked them not to talk.

Although all classes showed an improvement in the frequency of object reference during the study, I was discouraged by the way the control groups consistently lagged behind the treatment groups in number of observations per class. Some students in the talking classes would even sit with their backs to the model or object while they drew so they could be closer to a friend. When instructions were given at the beginning of a class to move desks to get the best possible view of a model or object, there was general movement and re-positioning in the treatment classes while the control classes hardly moved at all.

Some individuals in each class worked hard and produced very satisfying drawings, but the number of incomplete drawings each week was disappointing because it was a direct result of wasting time. The amount of erasing and clean sheet second starts was annoying because it wasted time and materials.

Another source of dissatisfaction with the control groups came from their reluctance to try new strategies or to follow directions consistently,
which made it difficult for me to help them expand their drawing experience. As some members of a table group lapsed into old ways of drawing, they tended to influence others around them. As they talked more and observed less they seemed to refer to each other's drawings for confirmation instead of to the model. The treatment groups, on the other hand, did not seem to be as influenced by peers. When one member of a table group reverted to a previously learned approach, there was little evidence that others at the table were influenced by it.

Peer influence was also a major factor in the difference between the lengths of time each group could sustain concentration. Individuals in the no-talking groups who had short attention spans would sometimes stop drawing, look out of the window, fidget and then return to the drawing whereas individuals with short attention spans in the talking groups would usually engage one or more members of their table in conversation or interplay. Length of sustained concentration for the entire control group was, therefore, largely determined by the individuals with the shortest attention spans.

With the exception of the "no-talking while drawing" rule for the treatment groups, the same disciplinary rules were in effect for all classes and the noise level in the control groups was kept to an acceptable level at all times. However, even when students began talking in low tones, it was often difficult for the teacher to converse with individuals in a normal tone of voice. Teacher discouragement usually rose with the amount of general talking because it meant students were detached from the activity and not drawing.

**Drawing Evaluations**

The willingness with which all classes filled in the Drawing Evaluation questionnaire at the end of each session was gratifying. The students
usually completed the form quietly and independently and seemed happy to
give their opinions and reflect on the day's session. Although the treat-
ment groups sometimes spent two or three minutes longer filling it out, the
quality of the answers was about the same for all classes. A discussion
follows of results from the Drawing Evaluation. Findings about (a) concepts
learned, (b) satisfaction with performance and (c) ability to concentrate are
included.

Concepts learned. There was a discrepancy between the concepts that
boys and girls said they were often aware of and their ability to apply
them. Girls reported being often aware of elements such as sources of
light, negative space, size relationships and tonal values almost twice as
frequently as boys. However, when asked to demonstrate the concepts in-
volved, boys and girls scored equally. This suggests that the responses on
the Drawing Evaluations were subjective measures only and did not necessarily
relate to objective criteria.

Satisfaction with performance. Most of the students indicated satis-
faction with the drawings they produced. All finished drawings were mounted
and displayed in the main hall of the school each week and the students were
pleased with the amount of commendation they received from parents, teachers,
and friends. The dissatisfaction that did occur, however, was nearly twice
as great for students in the control groups. These dissatisfactions seemed
to stem from two sources: (a) from efforts deemed unsuccessful and (b) from
incomplete work resulting from too little effort. Students in the treatment
groups who were dissatisfied were usually unhappy with the way they handled
an unfamiliar technique.

Ability to concentrate. Subjective estimates of ability to concen-
trate varied greatly. Talkers often reported that they had concentrated
very well, while other students who had worked quietly and intensely reported only average concentration. Each group seemed to set their standards for factors which inhibited concentration in the context of their own class setting. The treatment classes which were, on the whole, very quiet during the entire study, seemed to be bothered by talking even more than the control classes in which talking was a fairly normal occurrence. Slighter classroom noises such as radiators clanking and sounds of erasing were mentioned by the treatment groups as inhibiting factors while grosser sounds such as chairs falling and bells ringing were mentioned more frequently by the control groups.

The control classes were bothered by frustrations of ability and physical surroundings more frequently than the treatment groups. This may have been because they tended to give up easier when faced with technical problems and did not always take time at the beginning of the period to arrange themselves physically in a good vantage point from which to view the model, especially if that meant moving away from a friend.

There was no real difference between treatment and control groups in their subjective report of time passing. The item was included as an additional indicator of concentration and involvement. The number of students who reported poor concentration did not correlate in any way with the number of students who reported time passed slowly. This seems to indicate that "time passing" was not a useful indicator with which to correlate ability to concentrate.

**Drawing Scores**

Four complete sets of drawings were scored. The scores on both Draw A Person Tests were compared for all groups as were the scores on both live model drawings in order to see what differences existed among the classes
and to see what effect, if any, the variable had in the acquisition of higher drawing scores.

**Draw A Person Test scores.** The Goodenough-Harris Draw A Person Test, first designed by Goodenough in 1926 to measure conceptual maturity in children, and then revised by Harris in 1961, is the most highly standardized drawing test available. Although it can be used from ages four to fifteen, it becomes less discriminating at the upper end of the age scale (Harris, 1961), and was only marginally useful in measuring drawing ability of the students in this study. The test, which gives students the choice of drawing a man or a woman, was modified for use in the study by adding four items to the woman's point scale and two to the men's point scale in order to have an equal number of total points for each sex (see Appendix C).

Different criteria were used to score the drawings of men and women which made it difficult to compare boys' and girls' scores. Drawings of women scored points if they had "feminine-type shoes," "cosmetic lips," "cheeks," "skirts" and "jewelry," while drawings of men were credited for showing "four articles of clothing." Many of the girls who drew women dressed them in today's unisex styles without benefit of cosmetic lips, feminine shoes or jewelry and were penalized points.

Finer discriminations within items would have been more helpful in determining real differences between the drawings of individuals. For instance, no distinctions were made between stereotyped symbols for noses and attempts at realistic portrayal. Any nose with an upright stroke longer than the base line received credit. Men did not have to have nostrils to score, but women did. Men received credit for arm and leg movement while women did not.

Despite these apparent biases, and because there was a fairly equal number of boys and girls in each class who tended to draw persons of the
sex as themselves, there was only a twelve point spread between the lowest and the highest median class score on the first test and a seven point spread between them on the second test which indicated a fairly homogeneous ability range for all of the classes. The difference in scoring criteria for boys and girls did, however, invalidate any comparisons of ability that might have been made between sexes.

The variable did not seem to affect the scores in any way as three classes made uniform increases and one class retained the same score on the second test. In general, the gains in scores were accrued by students who used some shading and more definite types of footwear on the second test. The increases, therefore, did not seem to be a result of the variable, talking. Many of the second drawings looked almost exactly like the first ones suggesting a tendency to reproduce stock figures on drawings from memory rather than to invent new ones. In one case, the Draw A Person memory drawing and the live model drawing showed the same clothes and features thereby revealing an unusual reluctance to incorporate new visual information into previously developed schema or convention.

**Live model scores.** It might have been expected that with the treatment groups' completing a greater number of drawings, making more frequent observations and feeling greater satisfaction with their drawings that they would outscore the control group on the second live model drawing. This was not the case. All classes scored better on the second model drawing indicating an overall increase in ability, but there was no major difference between the treatment and the control groups. This might have occurred because (a) the scoring was not discriminating enough to pick up subtle differences in quality, (b) the study was too short to solidify skills and ability, (c) the majority of the instructional activities were concerned with drawing objects instead of people, (d) students have
pre-conceived notions of how to draw people and rely more on existing conventions than on fresh observations or (e) because few of the boys at this age reported they liked to draw people and felt they did so poorly.

Of the reasons listed above, deficiency in the scoring instrument and shortness of the study were probably the most pertinent. The drawings of the second live model were larger and looser than they had been the first time. Although students were instructed to fit the whole figure on the page, several of them ran off the page and were, therefore, penalized points. Whereas drawing scores may provide a semblance of objectivity in a drawing study, they cannot take into account subtle qualities of line or positive and negative spatial relationships which were stressed in the instruction during the study. Scores were not, therefore, an altogether satisfactory measure of skills acquired.

The short duration of the study may have been another major factor in the failure of the test drawings to reveal greater differences between groups. Because most of the instructional activities had been structured around the observation and drawing of objects instead of people, students' scores may have simply reflected insufficient practice in drawing people.
Chapter 5

CONCLUSIONS

This study examined the variable of talking in the classroom among grade seven peers as a factor in the acquisition of drawing skills. Data gathered from drawing test scores, teacher observations, student evaluations and drawing surveys indicate that talking among peers in the classroom may inhibit the process of visual thinking and retard the acquisition of specific concepts and drawing skills.

The proposition that talking in the classroom among pre-adolescent peers inhibits acquisition of representational drawing skill was reasonably, but not conclusively, examined through analysis of drawing test scores. Although a clear difference between the control and treatment groups' ability to demonstrate specific art concepts at the end of a drawing session was demonstrated, this difference was not reflected in the results of the test scores. The usefulness of standardized tests of drawing people as a reliable measure of acquisition of skill is, thereby, called into question. The test scores are determined by the number of drawing conventions the student includes and, while these may indicate maturity and intelligence, they do not necessarily reflect qualitative aspects of the drawing. Because most grade seven students are familiar with the conventions used in drawing people, their scores tend to accumulate at the upper end of the scoring scale which limits the range of possible improvement. Test scores were, however, useful in comparing populations and in determining a degree of equality between treatment and control groups.

The most striking indication that talking among grade seven peers inhibits visual modes of thinking was the consistent observation that
students of this age do not talk and draw in a purposeful manner at the same time. When they do talk and draw simultaneously, they use random, mechanical strokes which they often erase later. Students who talk and draw intermittently are less likely to make frequent reference to a model, achieve satisfaction with their work, follow directions or try new techniques than are students who sustain their drawing without intervening conversation. Students who chat complete fewer drawings and, therefore, receive less practice than students who do not.

Also of importance to art teachers is the effect on teacher attitudes and satisfactions of students' talking. Talking students are seen to be wasting time, producing below potential and to be having a higher incidence of erasures and second starts. Teacher dissatisfaction results from having to assess incomplete work and having to raise voice level in order to address the class or talk to individuals.

Adolescence is an especially peer conscious stage. Students at this age do not easily ignore the invitation of a friend to socialize and yet, the evidence presented here suggests that they seemingly cannot draw from a model or an object and talk at the same time. Nor can they successfully draw and talk intermittently without forgetting to refer to the model or follow directions.

Perhaps because of warnings earlier in the century about the dangers of interfering with children's natural artistic development and the more recent emphasis on affective learning and visual thinking, some confusion exists among teachers as to how much guidance should be given to children and adolescents in an art programme. This confusion has led to the misconception that students will develop artistically if they are simply supplied with materials and thoughtful subject matter. Teachers are often
loathe to impose instruction or social restrictions in the art room for fear of damaging creativity or spoiling the affective benefits of art. Although they may realize that satisfaction in art, as in any discipline, ensues from concentration, practice and progressive development of skills, they may lack the rationale to insist on a predominantly non-verbal environment in the art room.

Eisner (1972) stresses the importance of skill development as the key to unlocking artistic expression and advocates in-depth art programmes which emphasize practice and development of art techniques. Without skillful technique, he warns, children's visual thoughts and images will remain undeveloped or will find expression in other, more competent modes.

If, as the limited scope of this study suggests, visual processes are inhibited by verbal interference and if, acquisition of some types of drawing skills are retarded by extraneous talking in the art room, then a modest rationale may be provided for teachers who wish to limit verbal exchange in the art room in order to promote further development in drawing skill.

Drawing directly from observation has been presented in this study as an important element in the exercise of visual thinking. While little empirical justification has been presented by writers in the field of art education to show that extraneous chatter improves drawing skill or enhances visual thinking, evidence has been offered here which indicates that such talking inhibits the process of visual thinking in the drawing process. It also interferes with accumulation of drawing practice and, according to pupils' comments, results in diminished satisfaction with performance.

Although the findings in this study are modest and based on a small-scale, they are nevertheless a contribution to what idealistically should be a widening data-base. Several questions regarding the relationship
between verbal and visual thinking remain to be examined. This investigator recommends that further study be undertaken to determine:

1. The possible effects of a non-verbal environment for different types of drawing activities.
2. The possibility of students learning to shift consciously from verbal to visual modes of thinking.
3. The relationships between drawing and talking at different age levels ranging from elementary to secondary school.
4. The practice of drawing cartoon conventions at different age levels.
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Appendix A

Drawing Surveys

PILOT

DRAWING SURVEY

NAME: ___________________________ DATE: ___________________________

1. How artistic do people in your family think you are?
   very artistic ____  somewhat artistic ____  not at all artistic ____

2. How well do you think you draw?
   very well ____  about average ____  not very well ____

3. Indicate how frequently you draw the items in the list below:

<table>
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<th>Item</th>
<th>very often</th>
<th>sometimes</th>
<th>hardly ever</th>
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<tbody>
<tr>
<td>cars, trucks &amp; machines</td>
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<td></td>
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<tr>
<td>planes or boats</td>
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<td>bicycles, furniture, etc.</td>
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Check only one answer:

5. Do you draw best from memory or from real objects or from photographs?
   from memory ____  real objects ____  photographs ____

6. Name an object silently and close your eyes. Indicate how clearly it appears in your mind.
   very clearly pictured ____  not very clear ____  not pictured at all ____

7. Do you do most of your drawing when you are alone or with other people?
   alone ____  sometimes alone & sometimes with others ____  mostly with others ____

8. Did you do more drawing when you were younger than you do now?
   more when younger ____  about the same ____  more now ____
9. Do you ever get discouraged with your drawing because you can't make it look like the real thing?
   - often discouraged ______
   - hardly ever ______
   - never discouraged ______

10. Do you think it is important to learn to do overlapping, shading, perspective and point of view in drawing?
    - extremely important ______
    - fairly important ______
    - not very important ______

11. When you draw how often do you try to use the following techniques:
    - overlapping ______
    - shading ______
    - perspective ______
    - texture ______
    - unusual or different point of view ______

12. What has helped you the most in learning to draw? (Indicate 1st, 2nd, 3rd, 4th choices)
    - lessons ______
    - drawing real objects ______
    - looking at other people's drawings ______
    - copying photos and cartoons ______

13. Do you dream in Technicolor?
    - most of the time ______
    - sometimes ______
    - never ______

14. Indicate how good you think you are at drawing the items in the list below:
    - fairly good ______
    - average ______
    - not very good ______
    - space scenes ______
    - trees and flowers ______
    - mountains & landscape ______
    - cartoon characters ______
    - battle scenes ______
    - monsters ______
    - guns & tanks ______
    - buildings ______
    - everyday objects, bikes, furniture, etc. ______
    - clothes, fashion design ______
    - faces - side view ______
    - faces - front view ______
    - people ______
    - horses ______
    - other animals ______
    - planes or boats ______
    - cars, trucks & machines ______
15. In the space below, draw a picture of a person. Include as many realistic details as you can. Use the full sheet of paper for your drawing.
16. Briefly, tell what it is that you think you draw best and how you learned to draw it:


17. In the space below, make a drawing of the thing you draw best. (If you are not sure what to draw, you may draw an imaginary scene, an object in this room or your shoe.)
DRAWING SURVEY

NAME: ___________________________  AGE: ________ Years  ________ Months

1. How well do you think you draw?
   very well _____    about average _____    not very well _____

2. How artistic do your friends think you are?
   very artistic _____    somewhat artistic _____    not at all artistic __________

3. Indicate how well you like to draw the items in the list below:

   cars, trucks & machines  very well    fairly well    not well at all
   planes or boats          ___________    ___________    ___________
   horses                   ___________    ___________    ___________
   other animals            ___________    ___________    ___________
   people                   ___________    ___________    ___________
   faces - front view       ___________    ___________    ___________
   faces - side view        ___________    ___________    ___________
   clothes, fashion design  ___________    ___________    ___________
   space scenes             ___________    ___________    ___________
   trees and flowers        ___________    ___________    ___________
   mountains & landscape    ___________    ___________    ___________
   cartoon characters       ___________    ___________    ___________
   battle scenes            ___________    ___________    ___________
   monsters                 ___________    ___________    ___________
   guns & tanks             ___________    ___________    ___________
   buildings                ___________    ___________    ___________
   everyday objects: bicycles
   furniture, etc.          ___________    ___________    ___________

4. Do you draw best from memory or from real objects or from photographs?
   from memory _____    real objects _____    photographs _____

5. Close your eyes and try to picture your family car. Indicate how clearly it appears in your mind.
   very clearly pictured _____    not very clear _____    not pictured at all _____

6. How important is practice in learning to draw?
   very important _____    somewhat important _____    not important _____

7. How important is it to concentrate while making a drawing?
   very important _____    somewhat important _____    not important _____
8. Do you ever get discouraged with your drawing because you can't make it look like the real thing?
   often discouraged _____  hardly ever _______  never discouraged ______

9. When you draw, how often are you aware of the following:
   The source of light on the object  very often  sometimes  hardly ever
   Negative spaces left by the object  _______  _______  _______
   The size of the object in relation to the size of the paper  _______  _______  _______
   Shadows and darker tones on the surface of the object  _______  _______  _______

10. What has helped you the most in learning to draw? (Rank choices: 1st, 2nd, 3rd, 4th)
   _____ a) lessons
   _____ b) drawing from real objects
   _____ c) looking at artist's and other people's drawings
   _____ d) copying photos and cartoons

11. Indicate how well you think you draw the items in the list below:
   very well  about average  not very well
   Space scenes  _______  _______  _______
   trees and flowers  _______  _______  _______
   mountains & landscapes  _______  _______  _______
   cartoon characters  _______  _______  _______
   battle scenes  _______  _______  _______
   monsters  _______  _______  _______
   guns & tanks  _______  _______  _______
   buildings  _______  _______  _______
   everyday objects, bikes, furniture  _______  _______  _______
   clothes, fashion design  _______  _______  _______
   faces - side view  _______  _______  _______
   faces - front view  _______  _______  _______
   people  _______  _______  _______
   horses  _______  _______  _______
   other animals  _______  _______  _______
   planes or boats  _______  _______  _______
   cars, trucks & machines  _______  _______  _______
14. In the space below, draw a complete picture of a person. Make the best drawing you can. Include realistic details. Use the full sheet of paper for your drawing.

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12. What do you think you draw best? _____________________________________________

13. Tell how you learned to draw it. _____________________________________________

14. In the space below, make a drawing of the thing you draw best. (If you are not sure what to draw, you may draw an imaginary scene, an object in this room or your shoe.)
Appendix B
Instructional Activities

Activity 1 - Chairs: Negative Space (see Figure 1)

Introduction. After a discussion of positive and negative space, students were invited to explore the concept by drawing a profile on a small piece of paper. They were then instructed to draw the reverse profile facing the first one and to connect the two at the top and the bottom. They were then asked to shade in the space in between them. In the discussion which followed, they indicated that they were able to read the image either as a vase or as two profiles. When asked which line (profile) had been more difficult to draw, they agreed that the second profile was harder because it had to be copied in the opposite direction. In each class someone mentioned that it was harder to copy than to draw from imagination because you had a standard of comparison present. It was also mentioned in each discussion that, on the first profile, you could say to yourself, "This is a forehead; this is a nose, etc.," but on the second one, you had to draw without benefit of verbal directions and had to rely on references to angles and changes in directional line.

Preliminary exercise - Figure-ground reversal. Students were given a chance to practice a more complicated line. They were asked to construct a grotesque profile of a monster (complete with warts and blemishes) and were instructed to draw the facing profile. Some traced the first profile with a finger of one hand while they drew with the other. Others erased many times before they were satisfied. Roughly 50% of the students in all classes thought this exercise was easier than the previous one. Some said it was because they were "getting the idea;" others said it
Figure 1. Chairs
was because they were able to make up their own profile while on the first exercise they had tried to make theirs look like the teacher's. The other half of the students felt this was the more difficult exercise because the lines and angles were more complicated to copy.

**Drawing activity - Positive and negative space.** After a further discussion of negative space, students were asked to look at groups of chairs placed on tables at the front and back of the room. They were instructed to draw only the spaces in and around the chairs and to make the spaces touch the edge of the paper in at least two places. Many cheated and tried to draw the outlines of the chairs. They were asked to turn their papers over and to try again. When students finished their drawings they were allowed to colour in the negative spaces with oil pastels. Black paint was then applied to the entire surface revealing the positive shapes of the chairs.

**Activity 2 - Live Model** (see Figure 2)

**Introduction.** After the previous week's try at drawing negative space, students were asked if they would like to try drawing from life with a classmate for a model. All were enthusiastic about the idea. In the discussion which followed they were asked to think of ways this week's drawing would differ from last week's (the model is alive and will tend to move; it will get tired and the drawing will occupy positive instead of negative space). It was stressed, however, that both drawings would be alike in requiring careful observation and recording of the observations. All classes were asked to devise a simple, clear set of rules for the model and the class to follow. The model would remain as unmoving as possible, pick a spot on the wall at which to gaze and take the role seriously. The class would draw
Figure 2. Live Model 1
conscientiously during the model's poses and agree not to do anything to distract the model's attention.

There was a short discussion of materials to be used (school pencils and 12" x 18" white cartridge paper). It was established that the paper was chosen to provide maximum contrast with the pencil line and that its rather light weight meant that erasures had to be done judiciously to avoid tearing the paper. Students were asked to try to make their figures large enough to make the negative spaces around them interesting.

**Drawing activity.** Models were chosen from willing volunteers (about six to eight students in each class volunteered). Each class had a boy and a girl posing in opposite ends of the room at the same time. Students were instructed to move their desks if necessary to get an unobstructed view and to draw the model they could see most completely and most comfortably. Models were given straight standing poses to approximate as nearly as possible the most common pose used in the Draw A Person Test.

Students were asked to draw for the entire session. They were to practice observing and to draw continuously for the 40-minute period and to start on the other model if they finished the first one before the time was up. There was one eight minute pose at the beginning of the session followed by four five minute poses. Breaks were three minutes long.

**Activity 3 - Household Objects: Contour** (see Figure 3)

**Introduction.** There was a discussion of last week's drawing from live models. Students agreed that their favourite method of drawing was to look at the model and to draw what they remembered while looking at their paper. In each class it was mentioned that they often forgot what they saw between the time they looked away from the model and the time they began
Figure 3. Household Objects
drawing on their paper. When asked what they did about this problem, about 2% of the students said they looked again and the rest said they "sort of made it up."

**Preliminary exercise #1 - Upside-down drawing.** A line drawing of a seated figure was drawn upside-down on the board. Students were given small paper (4" x 5") and asked to copy the drawing on the board. They were told to draw only while looking at the board. They could stop their pencil at any time to check their progress on paper, but they should only begin moving it again when their gaze returned to the figure on the board. It was made clear that this was just an exercise, the results of which they would enjoy sharing with their friends. They were given ten minutes to complete the drawing and were asked to keep drawing and observing for the entire time. If they finished early they were to turn the paper over and begin again.

**Preliminary exercise #2 - Blind contour drawing.** In order to provide practice in drawing only while looking at an object, students were asked to draw a chair while I traced its contours with my finger. They were asked to draw slowly and deliberately and not to let their pencil get ahead of their point of focus on the teacher's finger. They drew for five minutes. All students attempted to draw only while looking at the chair.

**Drawing activity.** Groups were given battered, but interesting old household objects to draw (old clock mechanism, antique toaster, telephones) which they dubbed "Beautiful Junk." They were asked to draw them using the techniques they had just practiced (contour line, drawing while directly observing the object). We discussed materials, noting the richness and quality of line that could be obtained using soft lead drawing pencils on manila paper. Students were asked to draw for the entire 35-minute session. When they finished one object they could begin another one or try it from a slightly different angle.
Activity 4 - Skeleton: Gesture and Volume (see Figure 4)

**Introduction.** We discussed the skeleton model in the classroom and the students located the major bones and joints on themselves. They practiced sighting along a pencil to measure the relative proportions of different parts of the body.

**Preliminary exercise - Drawing volume.** We discussed the concept of volume and mass in contrast to the concept of outline. Students were asked to use the side of their white oil pastel and, through careful observation of the model, to draw quickly and lightly the mass of the entire skeleton before "re-visiting" each part in detail. They were asked to press, hardest on the parts closest to them so that they would show up lightest on their grey paper and to draw continuously for ten minutes. They were to fill their papers with skeletons, beginning a new one each time they finished one. They were also reminded of the importance of looking at the model while they were drawing and asked not to look at their papers as they drew.

**Drawing activity.** In the discussion of the preliminary exercise, most students admitted that they had had trouble remembering to draw the mass or volume first instead of the outline. They felt, however, that they were getting better at drawing while looking directly at an object. We talked about empathy and of the artistic necessity to become involved with the subject of one's drawing through feeling. We discussed some of the feelings that one might have toward this skeleton (horror, compassion, pity, etc.). Students were asked to plan their pictures so that the skeleton filled the entire page and to fill in the mass of the whole figure with the side of their oil pastel before going back to refine details. Because they were using white oil pastel on black construction paper (18" x 24"), they were told to press hardest on the parts closest to them to accentuate their proximity.
Figure 4. Skeleton
Before beginning to draw students were asked to adopt a describable feeling or attitude toward the skeleton and to maintain it during the drawing. The students drew for 30 minutes.

Activity 5 - Bones and Pumpkins: Continuous Contour and Tone (see Figures 5 and 6)

Introduction. Still life arrangements of bones and pumpkins were displayed at each table. Students were asked to try to identify the types of bones and their functions. Attention was called to the shapes-and-textures inherent in each object. We reviewed the differences between contour drawing (slow, careful, part-to-part build up of form with sensitive line) and gesture (quick rendering of total mass with indications of movement and volume) which they had tried in their skeleton drawings the week before. We discussed the importance (and difficulty) of drawing while looking at the object. The video camera was also introduced.

Preliminary exercise - Tone. Several tonal drawings were shown on the opaque projector and students discussed different ways of achieving three dimensional effects. Pictures of modeled spheres, cylinders and rectangles were shown and students were asked to identify direction of light source, cast shadows, highlights, deep tones and middle tones. They were asked to choose an object in the still life arrangement at their table, squint and identify three different tones in the object. Some had difficulty because of the reflected light in the room, but all said they could find at least one highlight, cast shadow, middle and deep tone.

Students were given a piece of 8" x 11" grey construction paper and black and white oil pastels. After choosing a pumpkin or squash in their still life arrangement, they were to squint at it until they could identify the tones we had discussed and then draw it quickly with the side of their
Figure 5. Bones and Pumpkins; Tone
Figure 6. Bones and Pumpkins
black oil pastel, using only tone to define its mass. They were to put in highlights with the white oil pastel and were given three minutes to complete the drawing.

**Drawing activity.** Students were given 12" x 18" white cartridge paper and black, water soluble, felt-tipped pens. They were asked to draw the still life arrangements in front of them beginning with the form nearest to them and to draw using a continuous contour line. They were to draw for 20 minutes without lifting their pen from the paper and to draw only while looking directly at the object. Once the arrangement was complete, they were instructed to repeat the forms they liked best and to fill the paper with bones and pumpkins, paying particular attention to the negative spaces formed by the addition of each object.

When finished, students were asked to identify tonal areas in each object and to use water and a brush to wash the water soluble ink into the darkest areas to create volume.

**Activity 6 - Bicycles: Memory Drawing and Viewfinders** (see Figures 7 and 8)

**Introduction.** It was ascertained that everyone in all four classes owned a bicycle. We talked about our bikes: what kinds we had, how we got them, how often we rode them, our earliest memories of them and how we felt toward our particular bicycle. Students were asked to close their eyes and to raise their hand as soon as they were able to visualize their bikes clearly. Roughly 40% of all students in each class indicated they could clearly picture a mental image of their bicycle. The rest of the students indicated that they could see parts clearly, but could not see the whole object clearly. Two students indicated they could not see any image at all with their eyes closed. These students felt confident,
Figure 7. Memory Bicycle
Figure 8. Bicycles; Viewfinders
however, that they could 'remember' everything well enough to draw their bicycles.

Preliminary exercise - Memory drawing. Students were asked to draw their bicycle from memory in pencil on 11" x 14" manila paper using any type of line or method they wanted to as long as they drew the best memory bicycle they could. They were also asked to think about their feelings about their bicycle as they drew it and to try to maintain a particular feeling or attitude toward it. They were to draw for 20 minutes from memory. If they finished before that time, they could turn the paper over and begin another drawing of something from their memory.

Students discussed difficulties they had trying to draw from memory. Many said they forgot to maintain a particular attitude toward their bike because they had been so busy trying to remember what it looked like.

Drawing activity. We discussed artistic selection and practiced using viewfinders. Students were given viewfinders with a square opening and a square piece of manila paper folded into quarters. They were asked to select parts of the display bicycle using the viewfinder and to draw what they saw with a firm contour line on one quarter of the paper. They were to pay particular attention to the relative placement of lines and shapes in the viewfinder and to make these correspond to the placement on their paper. When they finished drawing in all four squares, they could shade in the negative spaces. Many students found using the viewfinder was tiring so they began shading in negative spaces after each drawing instead of finishing the whole series first.

Activity 7 - Self Portraits: Continuous Contour (see Figure 9)

Introduction. Examples of self portrait drawings were shown. We discussed quality of line, placement, tone and emphasis. Students noted that
Figure 9. Self Portrait
some of the portraits relied heavily on shaded volume, some on pure line and
some on a combination for effect. We talked about clarity and honesty in re-
cording what is observed.

**Preliminary exercise - Blind contour of separate features.** Students
were given a 3" x 4" card to pierce with their pencil point to act as a
"blind" while they drew specific features of the person sitting directly
across from them. They were asked to draw each feature using a continuous
line and to draw only while looking at the feature. They were not to lift
the tip of their pencil nor to look at their drawing until they had completed
the feature. When finished with one feature, they were to find a clean
space on their paper and draw the remaining features. They were given
five minutes to complete a set of features.

Most students found the exercise difficult. They admitted "cheating"
in order to "sneak a peak" at their drawing or lifting the pencil to a
more advantageous spot to begin a new line. Each class agreed that they
would try hard in the next activity to maintain a continuous line.

**Drawing activity.** Students were given mirrors, felt-tipped black pens
and 12" x 16" white cartridge paper. They were asked to spend 20 minutes
drawing their own faces with a continuous line. About half of the students
began with the hair first and the rest were almost equally divided between
those who began with the eyes and those who drew the lower contour of the
face first.

**Activity 8 - Live Model** (see Figure 10)

**Introduction.** The students were enthusiastic about having the chance
to draw their classmates once again. We reviewed what we had learned about
relative body proportions, establishing light sources and placement of
features on the face. Two students (a boy and a girl) were chosen from the
Figure 10. Live Model II
many who volunteered to pose in each class. We reviewed the rules for
drawing from a model. The model agreed to remain as unmoving as possible
and the class agreed to draw conscientiously during the model’s pose and
to try not to do anything that would distract the model’s attention.

**Drawing activity.** Each class had a boy and a girl posing in opposite
ends of the room at the same time as before. Students were told to draw
the model they could see most completely and comfortably and to move their
desks if necessary to get an unobstructed view. Models were given straight
standing poses as before to most nearly approximate the most common pose
used in their Draw A Person Test.

There was an initial eight minute pose followed by four five minute
poses. Breaks were three minutes long. Students referred to the model often
while they drew and no one drew with their back completely to the model as
some had in the first live model assignment. The drawings were larger and
looser than they had been previously and many students finished more quickly.
Appendix G
Scoring Criteria for Drawings

Scoring Criteria for Live Model Drawings - Male or Female

1. Head present
2. Neck present
3. Neck, two dimensions (sufficiently wide to support head)
4. Eyes present
5. Eye detail: brow or lashes
6. Eye detail: pupil (no convergence or divergence)
7. Eye detail: proportion (horizontal length greater than vertical)
8. Nose present
9. Nose, two dimensions
10. Bridge of nose (length greater than width)
11. Nostrils clearly and correctly shown
12. Mouth present
13. Lips, two dimensions
14. Both nose and lips in two dimensions
15. Both chin-and forehead shown
16. Chin clearly indicated
17. Hair: substance, shaped matter
18. Hair: directed or brushed lines indicating texture
19. Hair: distinct style
20. Hair: indication
21. Ears present
22. Ears: proportion and position correct
23. Shoulders: clear change of direction (may not be square)
24. Shoulders: correct armpit
25. Arms: correct length
26. Arms at side (or active)
27. Elbow joint indicated
28. Fingers present
29. Fingers: correct number
30. Fingers: detail correct
31. Opposition of thumb
32. Hands present (back of hand indicated)
33. Wrist and ankle shown
34. Legs present
35. Hip: crotch or hip convexity (correct angle)
36. Hip: elaboration or modeling
37. Knee joint indicated
38. Feet: placement appropriate to figure
39. Feet: proportion to figure
40. Feet: detail
41. Feet: definite style of footwear (complete)
42. Clothing: indication
43. Clothing: detail sleeve and neckline
44. Clothing: detail waist and below
45. Clothing: no transparancies
46. Clothing: definite type, complete, no incongruities
47. Clothing: fine details (stiches, button holes)
48. Proportion: face (length greater than width)
49. Proportion: head to trunk
50. Proportion: arm narrows to wrist
51. Proportion: hand to figure
52. Proportion: legs to trunk
53. Motor: juncture of lines
54. Motor: controlled line
55. Motor: superior control, free of erasures
56. Sketching technique
57. Modeling technique: drapery shown, attempt at shading
58. Directed lines: head outline
59. Directed lines: trunk
60. Directed lines: appendages may not narrow joining body
61. Directed lines: swelling at calf and forearm
62. Facial features: symmetrical
63. Pencil pressure appropriate
64. Size: proportional to the paper (not less than 1/2)
65. Jaw line clearly indicated
Goodenough-Harris Draw-A-Person Test

Scoring Criteria for Draw A-Person Test - Woman Point Scale

1. Head present
2. Neck Present
3. Neck, two dimensions
4. Eyes present
5. Eye detail: brow or lashes
6. Eye detail: pupil
7. Eye detail: proportion
8. Cheeks
9. Nose present
10. Nose, two dimensions
11. Bridge of nose
12. Nostrils shown
13. Mouth present
14. Lips, two dimensions
15. "Cosmetic lips"
16. Both nose and lips in two dimensions
17. Both chin and forehead shown
18. Line of jaw indicated
19. Hair: indication
20. Hair: shaded matter
21. Hair: definite style
22. Hair: texture, directed lines
23. Necklace or earrings
24. Arms present
25. Shoulders
26. Arms at side (or engaged in activity or behind back)
27. Elbow joint shown
28. Fingers present
29. Correct number of fingers shown
30. Detail of fingers correct
31. Opposition of thumb shown
32. Hands present
33. Legs present
34. Hips shown: correct angle of legs
35. Feet: any indication
36. Feet: proportion
37. Feet: detail
38. Shoe: "feminine"
39. Shoe: style
40. Placement of feet appropriate to figure
41. Attachment of arms and legs to trunk
42. Attachment of arms and legs: correct angles
43. Clothing indicated
44. Sleeve: any indication
45. Sleeve: detail
46. Neckline: other than neck
47. Neckline: detail, shaped collar
48. Waist: change in direction
49. Waist: better than single line
50. Skirt "modeled" to indicate pleats or draping
51. No transparencies in the figure
52. Garb feminine
53. Garb complete without incongruities
54. Garb a definite "type"
55. Trunk present
56. Trunk in proportion, two dimensions
57. Head-trunk proportion: head at least 1/4 body size
58. Head: proportion
59. Limbs: proportion
60. Arms in proportion to trunk
61. Location of waist
62. Dress: area
63. Motor coordination: juncture of lines
64. Motor coordination: clean, controlled lines
65. Superior motor coordination: clean, sure, no erasures
66. Directed lines and form: head outline
67. Directed lines and form: breast
68. Directed lines and form: hip contour, convexity
69. Directed lines and form: arms taper
70. Directed lines and form: calf of leg indicated
71. Directed lines and form: facial features symmetrical
72. Ears indicated
73. Proportion: hands and feet to figure
74. Shading or modelling
75. Cartoon features

* Modifications made by the author
Goodenough-Harris Draw A Person Test

Scoring Criteria for Draw A Person Test - Man Point Scale

1. Head present
2. Neck present
3. Neck, two dimensions
4. Eyes present
5. Eye detail: brow or lashes
6. Eye detail: pupil
7. Eye detail: proportion
8. Eye detail: glance
9. Nose present
10. Nose, two dimensions
11. Mouth present
12. Lips, two dimensions
13. Both nose and lips in two dimensions
14. Both chin and forehead shown
15. Projection of chin shown: chin differentiated from lower lip
16. Line of jaw indicated
17. Bridge of nose
18. Hair: indication
19. Hair: any attempt at substance
20. Hair: style
21. Hair: texture or direction lines
22. Ears present
23. Ears present: proportion and position
24. Fingers present
25. Correct number of fingers shown
26. Detail of fingers correct
27. Opposition of thumb shown
28. Hands present
29. Wrist or ankle shown
30. Arms present
31. Shoulders: clear change of direction
32. Shoulders: correct armpit
33. Arms at side or engaged in activity
34. Elbow joint shown
35. Legs present
36. Hip: crotch correct angle
37. Hip: elaboration
38. Knee joint shown
39. Feet: any indication
40. Feet: proportion
41. Feet: heel indicated
42. Feet: perspective appropriate to position of body
43. Feet: detail and style of shoe
44. Attachment of arms and legs to trunk
45. Attachment of arms and legs: correct angles and position
46. Trunk present
47. Trunk in proportion, two dimensions
48. Proportion: head to total figure
49. Proportion: head to trunk area
50. Proportion: face
51. Proportion: length of arms
52. Proportion: arms narrow to wrist
53. Proportion: legs not less than trunk
54. Proportion: limbs in two dimensions
55. Clothing: indication
56. Clothing: two articles shown
57. Clothing: no transparencies
58. Clothing: four articles with detail
59. Clothing: complete, no incongruities
60. Profile: features present
61. Profile: details correct
62. Full face: features correct
63. Motor coordination: juncture of lines
64. Motor coordination: clean, controlled lines
65. Superior motor coordination: clean, sure, no erasures
66. Directed lines and form: head outline
67. Directed lines and form: trunk outline
68. Directed lines and form: arms and legs may not narrow at trunk
69. Directed lines and form: facial features symmetrical
70. "Sketching" technique
71. "Modeling" technique
72. Arm movement
73. Leg movement
*74. Proportion: hands and feet to figure
*75. Cartoon features

* Modifications made by the author
Appendix D

DRAWING EVALUATIONS

#1

NAME: ____________________________   DIVISION: _____________
DATE: _____________________________   ASSIGNMENT: Chairs

1. What do you like best about the drawing you did today?

2. What did you have the most trouble with?

3. Do you understand the difference between POSITIVE and NEGATIVE space?
   Yes ____   No ____   Not sure ____

4. Briefly tell what is meant by NEGATIVE space:

5. How well did you concentrate on your drawing? very well __
   fairly well ___
   poorly ___

6. What interfered most with your ability to concentrate?

7. How well did you succeed in making yourself draw only the negative space?
   very well _____   fairly well _____   not very well ______

8. Did you make your drawing large enough so that it touched the edge of the paper in places?

9. Did the drawing session pass quickly or slowly for you?
   Quickly ____   Slowly ____   Not aware of time passing ____
DRAWING EVALUATION

#2

NAME: ________________________ DIVISION: ____________

DATE: ________________________ ASSIGNMENT: Live Model

1. How well did you concentrate on your drawing? very well ___ fairly well ___ poorly ___

2. What interfered most with your ability to concentrate?

3. What do you like best about the drawing you did today?

4. What did you have the most trouble with?

5. What do you think you could do to improve your drawing?

6. Did you make your drawing large enough on the paper to make the negative spaces interesting?

   A) Last week's drawing more ____________________________
   B) This week's drawing more ____________________________
   WHY?

8. Did the drawing session pass quickly or slowly for you?
   Quickly _______  Slowly _______  Not aware of time passing ______
DRAWING EVALUATION

#3

NAME: ____________________________

DIVISION: _______________________

DATE: __________________________

ASSIGNMENT: Household Objects

1. What did you like best about the drawing you did today?

2. What did you have the most trouble with?

3. Did you draw slowly enough to allow your pencil to follow your eye around the outline of the object?

4. How well did you concentrate on your drawing today? very well ____
   fairly well ____
   poorly ____

5. What interfered most with your ability to concentrate?

6. Which did you have to concentrate on more? A) Upside down objects ____
   B) Right side up objects ____
   Why?

7. Did you have to concentrate more on this week's drawing or last week's?
   Tell Why. A) This week's drawing more ____
   B) Last week's drawing more ____
   Why?

8. Did the drawing session pass quickly or slowly for you?
   Quickly ____  Slowly ____  Not aware of time passing ____
DRAWING EVALUATION

#4

NAME: __________________________ DIVISION: ______________
DATE: __________________________ ASSIGNMENT: Skeleton

1. Which of the drawings you did today do you like better? Tell WHY?

2. What did you have the most trouble with in each of today's drawings?
   #1 -
   #2 -

3. How well did you succeed in lightly planning the entire drawing before going back and putting in details?
   very well _____ fairly well _____ not very well _____

4. Did you remember to colour the parts closest to you more heavily than the parts farther away?
   yes ____ some of the time ____ no ____

5. Were you able to maintain a particular feeling toward the skeleton while you were drawing it?
   Most of the time ____ Sometimes ____ No ____

6. Describe the feeling you had toward the skeleton while drawing it.

7. How well were you able to concentrate on your drawing today?
   very well _____ fairly well _____ poorly _____

8. What interfered with your ability to concentrate?

9. Did the drawing session pass: Quickly ____ Slowly ____ Not aware of Time ____
DRAWING EVALUATION

#5

NAME: ______________________  DIVISION: ______________________

DATE: ______________________  ASSIGNMENT: Bones and Pumpkins

1. Tell what you like best about each of the drawings you did today:
   #1
   #2

2. What do you think you could do to improve each drawing?
   #1
   #2

3. How well did you succeed in keeping your eye focussed on the object while you drew it?
   very well ____ fairly well____ not very well ____

4. Were you able to identify the shadows and highlights on the objects?
   yes____   no____

5. Which did you have the most trouble seeing? a) shadows____

6. How well did you concentrate on your drawing?
   very well _____ fairly well _____ poorly ____

7. What interfered most with your ability to concentrate?

8. Show that you understand how to shade a circle with a given light source by shading the small circles below.

light source

light source
DRAWING EVALUATION

#6

NAME: _______________________________ DIVISION: ______________
DATE: ______________________________ ASSIGNMENT: Bicycles

1. How well did you concentrate on each of the drawings today?
   A) Memory Bicycle - very well ___ fairly well ___ poorly ___
   B) Viewfinder - Parts - very well ___ fairly well ___ poorly ___

2. Which drawing did you have to concentrate on more? Tell Why?
   A) Memory ____________________________________________
   B) Viewfinder _________________________________________

3. What interfered with your ability to concentrate?

4. Were you able to maintain a conscious feeling or attitude toward the bicycle while you drew it from memory? Yes ___ Slightly ___ No ___

5. Describe the feeling you had toward the bicycle in your memory drawing.

6. In the viewfinder drawings, were you aware of the following while you drew:
   ______ Negative space Yes _____ Sometimes _____ No _____
   ______ Direction of line ______ ______ ______
   ______ Taking mental measurements ______ ______ ______
   ______ Time passing ______ ______ ______
   ______ Placement of the drawing relative to placement in viewfinder window ______ ______ ______
   ______ Distractions in the class ______ ______ ______

7. Tell what you had the most difficulty with in today's drawing session.
DRAWING EVALUATION

#7

NAME: ________________

DIVISION: ____________

DATE: ________________

ASSIGNMENT: Self Portrait

1. How well did you concentrate on today's drawing?
   very well _____  fairly well _____  poorly _____

2. What interfered with your ability to concentrate?

3. How well did you succeed in keeping the tip of your pen on the paper in the continuous line drawing? very well ____  fairly well ____  not very well ____

4. Which part of the face did you have most trouble with? Tell Why

5. Why do you think you had trouble with it?

6. Did the drawing session pass quickly or slowly for you?
   Quickly _____  Slowly _____  Not aware of time passing _____

7. Which part of the face did you have the most success in drawing?
DRAWING EVALUATION

NAME: ______________  DIVISION: ______________

DATE: ______________  ASSIGNMENT: Live Model

1. What do you like best about the drawing you did today?

2. What did you have the most trouble with?

3. How well did you concentrate on today's drawing?
   very well ____  fairly well ____  poorly ____

4. What interfered with your ability to concentrate?

5. Star the drawings below that you enjoyed doing most in this unit.
   Put an x next to the ones you enjoyed doing least in the unit.

   _____ Negative space - chairs
   _____ Live drawings from a model
   _____ Household objects - "Beautiful Junk"
   _____ Skeletons
   _____ Bones and pumpkins
   _____ Bicycles
   _____ Self portraits

6. What do you think are the most important things to keep in mind when you are learning to draw?

7. Did today's drawing session pass quickly or slowly for you?
   Quickly ____  Slowly ____  Not aware of time passing ____
Appendix E

Sample Teacher Logs

TEACHER LOG # 8

DATE: November 24

DIVISION 1

ASSIGNMENT: Live model

Ex - refers to model  w - completes plan of whole before doing details
0 - does not refer to model  b - begins with (head, feet, etc.)
T - talking and not drawing  ss - second start

1. Entrance: Lively but fairly orderly

2. Introduction: Listened quietly during introduction

3. Atmosphere in room:
   eager, relaxed

4. Levels of concentration and participation:

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:00-11:08</td>
<td>Pose #1- some giggling at first...settled in 30 seconds</td>
</tr>
<tr>
<td>11:11-11:16</td>
<td>#2 - 11:11 - 11:16 settled immediately..absolute silence</td>
</tr>
<tr>
<td>11:35-11:40</td>
<td>#3 - settled immediately excellent concentration</td>
</tr>
<tr>
<td>11:45-11:55</td>
<td>#4 - Excellent concentration even by this pose</td>
</tr>
</tbody>
</table>

5. Distractions: Borrowing erasers. Desks turning during #4 to draw other model

6. Feelings toward class & individuals during lesson. Why?

#1 Triangle of talkers at T-3 irritating. Pleased with effort and concentration evident.
   No effort is needed to maintain quiet. Rest of class drawing seriously and with purpose. Talking ceases after pose #1. 6 kept drawing during Break #1, Break #2 was quieter...some movement & sharing; 9 kept drawing. 4 drew during Break #3

7. Feelings after class leaves. Why?

Some excellent drawings. Best class yet all completed

8. Spot checks. Remarks:

Triangle at T-3 wastes a lot of time work reflects their disinterest

Most students observing model even when they get to clothing

(constant verbal on visual exchange)

(finishes -begins new model at 4)

(b-head model at 4)

(ends at 3 - sits)

(b-head Ex1234)

(b-head Ex 1234)

(b-head Ex1234)
TEACHER LOG # 8

DATE: November 16, 1981

DIVISION 2

ASSIGNMENT: Live Model

Ex - refers to model
0 - does not refer to model
w - completes plan of whole before doing details
b - begins with (head, feet, etc.)
T - talking and not drawing
ss - second start

1. Entrance: Orderly

2. Introduction: Attention

3. Atmosphere in room: lively, relaxed

4. Levels of concentration and participation:

<table>
<thead>
<tr>
<th>Time</th>
<th>Pose 1</th>
<th>Pose 2</th>
<th>Pose 3</th>
<th>Pose 4</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:00-11:08</td>
<td>Quiet</td>
<td>Excellent</td>
<td>all drawing at first in absolute silence. Talking begins after 3 mins.</td>
<td>Fair concentration, some whispering after 2 minutes. Quiet talking by end ofpose</td>
<td>Quiet and Independent - Chatted until the bell</td>
</tr>
<tr>
<td>11:20-11:25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:35-11:40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:45-11:55</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. Distractions:

6. Feelings toward class & individuals during lesson. Why?

#1 - 4 people drew during break. Most moved around and visited

#2 - 4 kept drawing

#3 - No one drawing, during break, all moving around and chatting

7. Feelings after class leaves. Why?

Many students finished (or thought they did) by the end of the second pose. Instead of beginning the other model they chatted.

6. Spot checks. Remarks:

Concentration high for 1st and 2nd poses

No one began a 2nd drawing. Students seemed in a hurry to finish. Few used breaks to improve drawing. Details are hasty.

[Diagram of student positions and poses]

[Diagram of student positions and poses]

[Diagram of student positions and poses]
TEACHER LOG #8

DATE: November 17, 1981

DIVISION 3

ASSIGNMENT: Live Model

Ex - refers to model
0 - does not refer to model
w - completes plan of whole before doing details
b - begins with (head, feet, etc.)
T - talking and not drawing
ss - second start

1. Entrance:
   Orderly

2. Introduction:
   Passive at first, enthusiastic as models are chosen. Most of
   this class wanted to use soft, art pencils

3. Atmosphere in room:
   Serious and productive at first; noisy toward the end

4. Levels of concentration and participation:

<table>
<thead>
<tr>
<th>Time</th>
<th>Pose #1 - Excellent concentration. Settles immediately to work</th>
<th>Pose #2 - 9:26 - 9:31</th>
<th>Pose #3 - Settled quickly. concentration begins to break down after 2 mins.</th>
<th>Pose #4 - took 1 min. to settle. T-6 murmurs throughout entire time. quiet talking throughout room as people finish</th>
</tr>
</thead>
</table>

5. Distractions:

6. Feelings toward class & individuals during lesson. Why?

T-6 talked during entire class...spent approx. 7-8 minutes drawing. Breaks were noisy.
A lot of visiting. 10 kept drawing during B. #1; 6 drew during B #2
Irritation at number of people who wasted time.

7. Feelings after class leaves. Why?

Larger, looser drawings than before. Many finished early. Could have put more into drawings.

8. Spot checks. Remarks:

When they talk they freckle or doodle mechanically. There's more talking as they observe less or as they revert to familiar drawing symbols.

[Diagram of drawing symbols and annotations]
DATE: November 16, 1981  DIVISION 4  ASSIGNMENT: Live model

Ex - refers to model  w - completes plan of whole before doing details
0 - does not refer to model  b - begins with (head, feet, etc.)
T - talking and not drawing
ss- second start

1. Entrance: Quiet

2. Introduction: A bit lethargic, not very serious during introduction. Only 4 asked for special drawing pencils when offered

3. Atmosphere in room: lethargic at first...later, serious, very purposeful

4. Levels of concentration and participation:

<table>
<thead>
<tr>
<th>Time</th>
<th>Pose #1 - a bit slow to settle - absolute silence after 40-seconds</th>
<th>#3 - serious, good concentration</th>
<th>#4 - Some whispering as people begin to finish. A lot of erasing and at begin...</th>
<th>Some talking during evaluation</th>
</tr>
</thead>
</table>

5. Distractions: Charlie. Mike is restless, taps eraser constantly, Scott drops things

6. Feelings toward class & individuals during lesson. Why? I feel I have to monitor the talking intensely to keep the control on. Most are referring to the model and trying to observe closely. Am pleased with the breaks...noise level is low. Students keep on drawing during breaks, but erase alot at the beginning of next pose.

7. Feelings after class leaves. Why? Drawings are looser than first ones. They are a lot larger...some don't fit on page.

8. Spot checks. Remarks: Many stopped drawing by 4th pose...sat, 10 started the other model