STUDENT-PRODUCED EDUCATIONAL MEDIA

AS A LEARNING STRATEGY

Maritza Berger

A Thesis

in

the Department

of

Education

Presented in Partial Fulfillment of the Requirements for
the Degree of Master of Arts at Concordia University
Montreal, Quebec, Canada

November, 1982

ABSTRACT

STUDENT PRODUCED EDUCATIONAL MEDIA AS A LEARNING STRATEGY

Maritza Berger

The relative effectiveness of media production was investigated
to determine the significance of this approach in improving the
learners' achievement of specific content related goals. Con-
sideration was also given to the effectiveness of this method
for the "low-achievers" in comparison with the "achievers". The
operational hypothesis was tested by a quasi-experimental fac-
torial design. Learners of grade V-VI levels, 57 in numbers,
were stratified into high, medium and low-achieving groups and
were assigned to two treatments: conventional and media methods.
Subjects served as their own control group; the difference -
gain or loss - in achievement between the two methods was com-
pared and analyzed based on the results of pre- and posttests
of two units of instructions. The units were chosen from the
curriculum in natural science for that grade level and they were
from the same general topic: reproduction. Repeated measures ana-
lysis of variance revealed a significant interaction between the
two methods indicating, as it was hypothesized, that the media
condition facilitated greater learning gains compared with the
conventional method. Thus, Hypothesis 1 was accepted. Levels of
subjects did not perform differentially in the testing, sug-
gesting that the null-hypothesis should be accepted for Hypo-
thesis 2.

TABLE OF CONTENTS

Chapter		Page

LIST OF TABLES

LIST OF FIGURES

WHAT MAKES A GOOD
EDUCATION?
WHAT MAKES A GOOD
LIFE?

J. Holt

CHAPTER I

Introduction

Since the late sixties much has been written about the inadequacy of the existing educational practices. There are those who argue that schools are not keeping pace with the rapid changes occurring in other facets of the social environment. Ferkiss (1974) goes as far as to suggest that the present educational system is not devoted to the improvement of society, but rather serves a society concerned only with the sale of new goods and the creating of new ways of destruction.

While there are as many types of educational goals as there are educators, many agree that education should provide learners with the skills "society deems requisite to a full and effective life" (Geller and Laybourne, 1978, p. 7). This is not a new thought. As far back as 1897, Dewey noted that schools must represent a life which reflects the life that is carried on in the home, the neighbourhood and in the playground. Seven decades after Dewey's assertion, McLuhan (1964) concluded in a similar vein:

> We are entering the new age of education that is programmed for discovery rather than instruction.
> (p.x.)

The difficulties facing schools today may be attributable to the fact that by the time new educational goals have been established, the culture in which the school system exists has changed - a new socio-cultural pattern has devel-

oped which demands new educational strategies. Regardless of
the academic potential of young learners, the increasing com-
plexity of our environment puts increasing pressures on both
learners and educators. Education in elementary and high
schools may have been deteriorating precisely because it can-
not keep pace with the complexity of the environment; society
is changing too rapidly for the educational system to serve
as a forerunner; as a fact it is rather lagging behind those
very changes. The gap between educational needs and capacity
of the learners has widened increasingly in the last decades.
It can be assumed that lack of communication and other social
skills have contributed to this increasing gap. Consequently,
conflicts and serious stresses have developed within the
learners, in educational institutions and in society.

Context of the Problem

One of the most striking examples of educational
failure is the neglect of the communication explosion which
is so much a part of our everyday lives. McLuhan (1967) in
his The Medium is the Message concludes that in this electron-
ic 20th century, students are in fact living in a 19th century
classroom. Many others, often called "futurist writers" such
as Toffler (1970) and Illich (1972) have pointed to the fact
that current schooling practices are not aimed at developing
in students the skills necessary to interpret media codes
that are so pervasive in today's society. Similarly, Donald
P. Ely (1977) makes the following point:

> In the United States there are more television
> sets than indoor toilets. By the time a North-
> american youngster finishes secondary school,
> he has spent more time watching television than
> in school. (p. 7)

Kit Laybourne (1978) referring to the 1975 statistical reports states that the television set in the average A-merican home is on for 6.2 hours a day. During the elementary grades the average student watches the tube for over twenty-five hours a week. Indeed, there is evidence that children may acquire more education outside of the classroom, in a world influenced to a large extent by the media, than in it.

Technology has ended the monopoly of home, church and school on learning. Today a large proportion of information comes from the outside world, through the medium of television, films, etc. Hence, the importance of understanding the new forms of communication must be recognized. Schools should provide opportunities for learners to become selective and critical consumers of the technology and its content.

There seems to be growing concern about the need of learning other than verbal and numerical and that to ignore other modes of response limits children's understanding and progress. As it has been pointed out by McLuhan (1964):

> In a highly visual culture, it is as dif-
> ficult to communicate the nonvisual prop-
> erties of spatial forms as to explain
> visuality to the blind. (p. 290)

Furthermore, there is a pressing need to facilitate and capitalize upon modes of success for the learners who can achieve little in the traditional verbal and mathematical literacy modes. There is evidence that it is important to explore the world visually, auditorily and kinaesthetically. Eisner (1978)[1] claims that the non-verbal forms of knowing are valid ones, and that to appreciate this fact one has only to think of the way great dancers interpret the world or to consider the intelligence of Henry Moore as a sculptor.

Those who have worked with young learners over a period, know how important to them are the non-verbal modes of communication, particularly movement, gesture, sound and visuals. Although a great number of audio-visual aids are being used in teaching, they mainly transmit information. Production of media, with children experiencing creative learning directly, is rarely employed. Media technology in our schools is still used largely to perpetuate teacher-oriented, expository patterns of teaching, neglecting the kind of learning demanded by Bruner, McLuhan and many others as early as the 1960s. Robert L. Shayon (1973) summarized this idea by saying:

> What would you think of the literacy of a person who could read but not write? He would be a half illiterate. In a culture where status is derived from the ability to write, he would feel inferior. By the same logic today, to be only able to receive media messages is to be electronically illiterate. (p.12)

---

[1] (Lorac, 1981, p. 10)

Electronic or media literacy on the other hand would mean
ability to receive and send messages. According to Levie
(1978), media literacy could be defined as the ability to
identify and use codes that are characteristic of media.

Levie also debates the question of "who is in need
of instruction in visual literacy." He feels that although
the subjects of research cited in most studies are either
young learners or adults in underdeveloped countries, the
fact remains that most adults in our culture are unskilled
in this field. Student participation in media production
could lead to an increased number of "media literate" adults
in our society. Active media work may also have an indirect
effect on learners aptitudes. This study aimed to investigate
the extent of such effects on fifty-seven young learners.

Statement of the Problem

The purpose of this paper is to examine whether participation
in production of educational media material produces better
comprehension in the content area than participation in con-
ventional classroom activities. The following question was
also considered: Does student production of educational media
produce a comparatively greater gain in comprehension for
"low-achievers" than high achievers? Other problems discus-
sed in this study deal with the effectiveness of media prod-
uction as a learning strategy compared with other, more con-
ventional methods.

Significance of the Study

A thorough review of the literature provided some information on the topic of student production but more extensive empirical studies seem to be quite rare. There was no literature found by this researcher, in spite of a survey of ERIC and computer searches at McGill as well as at Concordia University on the effect of student-produced educational media on learners' achievement. However the benefits of discovery oriented learning and direct experience have been widely discussed in the literature. As producing media is based on activity by the learner, it could be considered one basic form of discovery learning.

Results of this study may have practical implications by encouraraging inclusion of such media related activities in the curriculum not only to a greater extent and not simply as an art or enrichment activity, but as an integral part of the total curriculum.

Furthermore if an improvement can be demonstrated particularly for learning of low achievers, such research may shed some light on an effective method of instruction for the "underachievers".

Finally, the writer anticipates that by filling some gaps in the literature related to student-production, other researchers will also carry out some investigations in this rather neglected area of instructional communication.

CHAPTER 2

Review Of The Literature

In order to structure a thorough investigation of the literature, three areas were identified by the researcher as relevant: 1) direct experience, 2) learners' preference of visual symbols versus verbal ones and 3) the appeal of activity-based learning and its effects on the "low-achievers". Some of the literature on direct experience or "activity-based" instructions is included in the review since the method proposed and evaluated in this thesis is fundamentally related to active versus passive learning. Literature on non-verbal form of experience is included because this formed the basis of the production methods employed in the experiment. Literature related to the second aspect of the study, achievement level and preferred learning mode is also discussed in this review.

Direct Experience

In the area of curriculum studies, direct experience has been a major concept since the early 1900s. Ralph Tyler (1950) and Hilda Taba (1962) view it as critical in the curriculum development process. Dewey emphasized the importance of participation of the learner in the formation of the purposes of his own learning since the beginning of this century.

The nature and definition of direct experience is wide-

ly debated in educational literature. According to Bruner (1966) there are three modes of experience: enactive, iconic and symbolic: the first being related to the learner's direct activity upon an environment, the second to the learner's observation on another's activity and the third mode of experience related to arbitrary symbolic systems. Dale (1946) and others (Morris, 1946; Carpenter, 1953) have claimed that instruction at the symbolic level, without involving direct experience to relate it to, is likely to result in meaningless rote learning which is easily forgotten and is of little long-term value. Dale's "cone of experience" (see Figure 1) demonstrate this hypothetical relationship between skills and experience. As Heinich and Molenda (1982) point out it is interesting to note that the theories of Bruner (1966) closely parallel to Dale's "cone of experience". It can be noted from the right side of the cone that experiences in which the learner is involved are designated enactive experiences by Bruner. At a higher level in the cone, experiences in which the learner is more passively involved, nevertheless retained due to some element of reality (i.e. realistic cues), are considered to be iconic experiences. At the highest level, the learner participates in symbolic experience, and since this has been preceeded by more concrete experiences it can relate to the arbitrary modes of learning. According to Dale (1946) and Bruner (1966), concrete direct experience has to preceed symbolic experiences to have value.

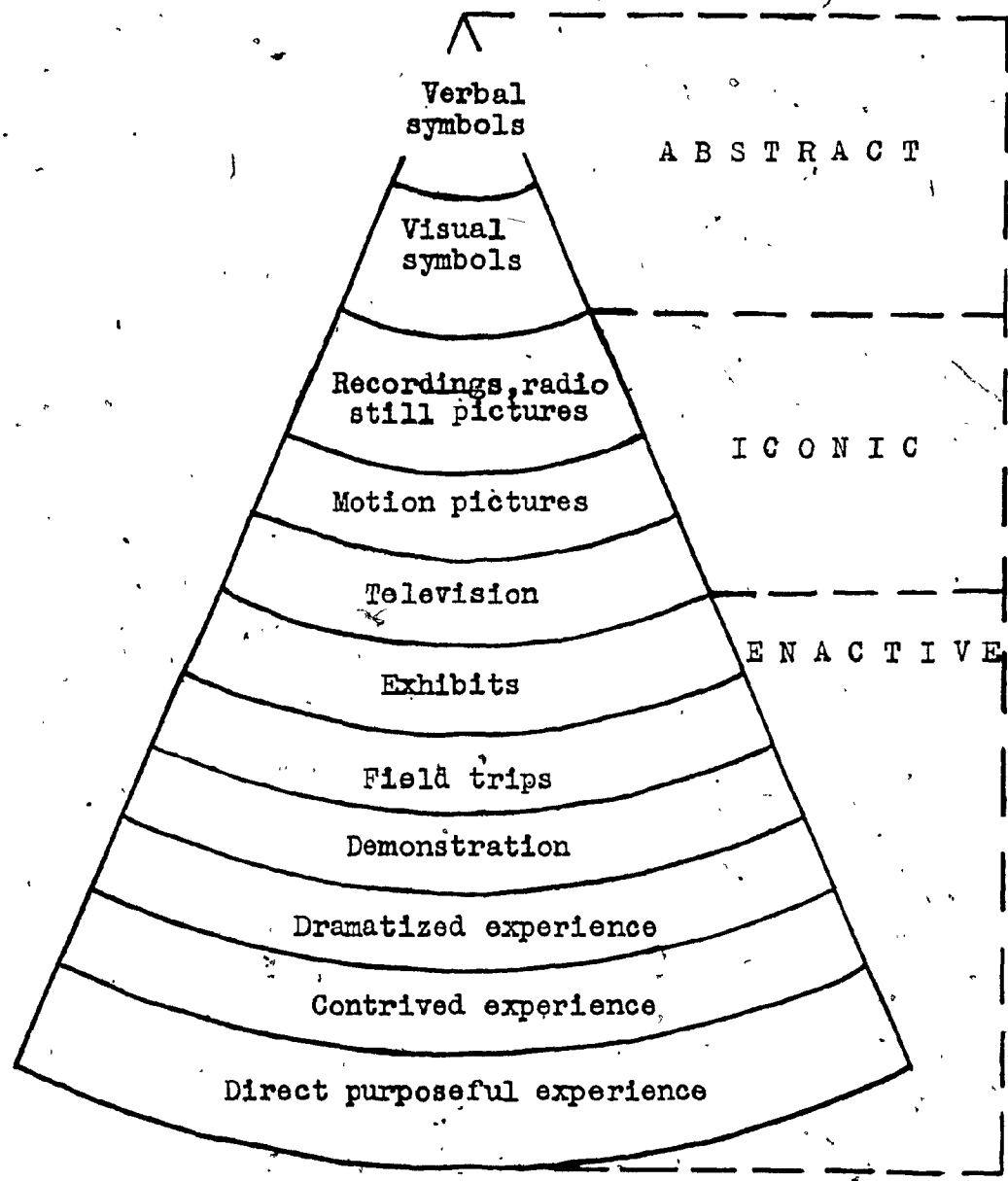Building up a learner's base of knowledge is only one

Figure 1. Dale's Cone of Experience parallelled

with Bruner's theories

Note. From "Media and the New Technologies of Instruction"

by Heinich and Molenda (1982)

200 % of original size

of the gains of direct experience, according to Bruner and Olson (1974). While the knowledge provided by a given form of experience eventually converges,[2] or forms a common schema (Anderson, 1978), the skills that are derived from a variety of experiences may differ. For example, in learning about a chair, through either sitting in one, watching somebody sit in one or reading about sitting in one, the learner derives skills which may or may not be related to one's eventual knowledge of "chairness". In the first case, learning to sit is functionally related to learning about sitting, whereas in the other cases the skills component (watching and reading) are less integrally connected to the knowledge component. Except in the skills area (i.e. reading and math) it could well be debated, that direct experience provides a blend of skill and knowledge which is difficult to attain in either of the other forms of experience. Once acquired through direct experience, future iconic or symbolic experiences are likely to be more meaningful to the learner, assisting formality and structure.

Even though this line of argument has been around at least since Dewey, it is not always practiced in a classroom mainly because it is difficult to provide direct experiences in a schooling environment. Nevertheless, theorists of instructional technology (Dale, 1946; Morris, 1946; Carpenter, 1953)

---

[2] This point is also made by Salomon (1979) citing a collection of work from a variety of sources. He argues that the more articulate a learner's schema, the less difference will result from various forms of experience in content learning.

have advocated using surrogates of realism as aids to learning. Pictures, models, films, televisions and more recently computers (i.e. as simulators) have been hailed as successful in providing a link between purely symbolic learning and active experience. Nevertheless, with the exception of computer-assisted instructions, that relies heavily on symbolic systems, most of the methods mentioned above are likely used in a passive, iconic-like manner in teaching. The individual who does not possess the required level of literacy in the previously listed modes of learning, has to compensate, in many cases, trying to use acquired knowledge from personal experience as stated by Carroll (1964) and Masters and Branch (1969). Thus language and other cultural media (numbers, diagrams, graphs, etc.) rely heavily on competency upon literacy in that particular medium. The meaning will also be limited to the meaning previously acquired by certain symbols. To interpret a picture a person has to be familiar with the "realia" represented in the picture. The diagram of a snowflake, for example, may have no meaning to a desert inhabitant.

A feasible alternative to the passive, instructor oriented media method, described here, is to allow learners to participate in producing the media. For this instruction the learner is provided with many of the positive benefits of direct experience (i.e. doing the media) while at the same time actively participating in the content research of the topic being taught.

Discovering something by doing rather than by simply

being presented will most likely motivate young learners even to a greater extent then adults. Direct, activity based experiences such as those involved in producing audio-visual materials seem to satisfy an intrinsic need of the young learners to explore the environment. Herein lies the importance of activity-based learning vs. only symbolic learning for children and another justification for "doing the media".

Among activity-based experiences, films, TV programs, filmstrips, sound recording and simulation games should not be dismissed as 'merely enrichment' says Bruner (1966). Bruner calls upon these devices to provide "vicarious experience" for all types of learners. Mitchell (1971), referring to an experiment by Cohen, concludes that participation results is strong positive reinforcement. Modified learning strategies including programmed texts and a revised curriculum may result in more academically competent youngsters who through recognizing their success in an area in which they had previously failed, become better achievers. According to Cohen (1967) this has been substantiated.

Some educators and researchers seem to go even further in advocating experience-oriented curriculum. At the extreme, people like J.A. Dator (1971) demand the discontinuance of the teaching of reading and writing as 'basics'. Instead, Dator recommends replacing these subjects with Super 8 cameras and Portapak instructions, three-dimensional modeling, aural communication technologies, computer programming followed by

lasers, holograms and other advancing technologies.

In summary, activity-based experiences and careful structuring of such activites seem to be advantageous in developing various communication and social skills as well as providing an effective method of learning the subject itself. Many researchers conclude that such experiences should become integral parts of the curriculum .

Pictorial and Verbal Learning

Another potential benefit of student produced media is that learning can occur through the internalization of both pictorial and verbal information. Adherents of dual - coding (Paivio, 1971) have long argued this point in favor of audio-visual presentations. Collectively, however, the results of several decades of research in which dual channel (audition and vision) effects have been studied has produced only mixed support for combining words and pictures. Some recent examples from the literature are reviewed here.

Hartman, (1961) Hsia (1971) found printed text more effective when information to be learned was difficult, but audio-visual presentations were found superior for less complex material. This finding is in agreement with a study by Pryluck and Snow (1967)[3] which found that in the case of relatively simple materials, films facilitated cognitive transfer faster than verbal instructions. On the other hand, studies of print plus pictorial materials for children have generally con-

---

3 (Reid, 1967)

cluded that pictures have a positive learning effect when used in concert with print materials (Levin & Lesgald,1979)

A great number of studies have been conducted on the effect of various symbol systems and coding elements on learning (Levie, 1978, Meierhenry, 1969, Biekert, 1971) Most studies conclude that there is no one best symbol for any learner, but the codes that match a prior experience of a particular learner are the most effective. Salomon (1979) has summarized this idea by saying that symbol systems can be used to activate certain mental skills in students if they already possess these skills, or can supplant these skills in learners who do not.

C.F. Hoban and E.V. van Ormer (1970) summarized reports on the instructional value of films compared with other methods. Although the findings were somewhat controversial, some reports indicated that instructional films may contribute to more factual learning than comparable reading materials or lecture presentations, and could reduce instructional time. A more recent annotated bibliography of 73 reports of research on the impact of instructional media seems also controversial in findings. Nevertheless, some of the reports show evidence of gains by the experimental media group. (M.R. Simonson,1980) In other research media instructions led to increased interest in the learners. In Biekert's experiment industrial education students (N = 47) received instruction via hands-on experience versus visual media. While there were no significant differences between the groups, the students who received visual

media instruction had the greatest positive interest gain.
Another report in the above bibliography accounts for im-
proved attitudes toward mathematics in 89 high-school stu-
dents as a result of computer-assisted instruction (Hall,
Mitzel, Riedesal, Suydam, Trueblood & Mechlin, 1969). Amiran
(1962) conducted a study among elementary school children of
natural science material and of science attitude and interest
changes following a program of science series by television.
Fifth-grade students (1,600) in 90 classrooms received the
treatment and one control group was included in the design.
Results indicated that students who had assignments in addi-
tion to other treatments changed significantly in science at-
titude.

F. Dwyer (1978) believes that no valid comparison of
different media can be made in relation to one type of learn-
ing objective, but each medium should be evaluated in terms
of the learning objective for which it is best suited. Levie
and Dickie (1973) propose to specify relevent variables in
media research to shift from comparing one media with another
to investigating more complex interactions between instruc-
tional variables. Most researchers seem to agree that research
should aim a closer link with educational practice. Allen (1971)
feels that research findings should be translated into practice.
Salomon, summarizing findings of Gagne, Chu & Schramm, and
Jamison & Wells concludes that future research will shift to
qualitative dimensions instead of just asking questions such
as "Is medium A better than B?" Both Levie and Salomon claim

that more complex teaching methods are required in extracting information from visual symbols and that production may be an excellent method of such training.

Evidence seems to support the notion that there are three main connections between language and thinking. The first is concept building; words play a central part in the forming of generalizations about the world (Luria and Yudovich, 1971). Psychological and philosophical research, both suggest that learning to recognize colors for example is speeded up by the use of associated words (Vigotsky, 1962). Another key benefit of language, according to Luria and Yudovitch is that it enables the learner to make generalizations in the absence of objects or relationships from which they are made. The third contribution of language to thinking is that it promotes generalization to be matched with concrete experience. However, if verbal generalizations were the only form of thinking, then it would be difficult to explain many teachers' findings that children are often able to make more complex statements in audio-visual terms. Referring to Bruner and Piaget, Lorac and Weiss (1981) suggest that at the level of pure language there are context-free manipulation of ideas by limitations imposed through logic, but at the level of direct experience there are real objects and relationships which are not limited but rather complex. Many youngsters struggle and may not achieve context-free manipulation because they have not fixed new ideas in the iconic mode. In creating a picture a child puts a frame around part of the enactive, real world which becomes

the first stage of abstraction - iconic imagery. The child
then puts frames around other parts of the enactive world
obtaining a series of images which he then rearranges, get-
ting to the purely thinking or verbal stage. Thus the rela-
tionship between the enactive, iconic and symbolic modes of
learning is strengthened and will lead to creative ideas
that often may not develop in a traditional learning situa-
tion.

Levie (1978) concludes that some kind of functional
equivalence between images is at the root of our ability to
interpret pictures; the mental images evoked by various pic-
tures of an object function as if they were equivalent and
this is the explanation for the characteristic of the iconic
mode which is nontranslatable into the verbal mode, making a
picture "worth" more than thousand or any number of words.
Levie feels that further research in visual literacy should
investigate the interrelationship between pictorial stimuli
and mental imagery and answer questions involving identifica-
tion of effective learning strategies. Both, Levie and Salomon
(1978) feel that production is a more reliable criterion for
testing cognitive understanding. Nevertheless, as it was men-
tioned before in this study, research on the effect of media
has been mostly concerned with presentations and not production
of media materials. The present study attempts to investigate
the production aspect as well as the interaction between prod-
uction and learners' achievement level. The visual elements

contained in media production may have a special appeal for
young learners. Luria (1973) is particularly concerned to
debate the 'psychomorphological' approach of experts who
try to pin-down separate geographical areas of the brain
for cognitive and affective functions. Luria's claim is that
the empirical experience of many teachers suggests that when
students are encouraged to bring emotions and ideas together
into a learning experience, then the language development
and the learning are much more powerful. Luria finds it
reasonable to assume that the ability to manipulate lan-
guage to express feelings is similarly acquired to the abil-
ity to manipulate language to express ideas. Words are emo-
tionally neutral only until they generate images which are
laden with value and emotions. It could be assumed that val-
uing and responding to ideas and feelings takes place at the
level of imaging. This may explain the increased motivation
and emotional involvement of learners participating in media
production and image creations. In their first years of school-
ing children are generally very eager to learn and they enjoy
school activities. Bosworth (1976)[4] claims:

> Children first learn about their world through
> visual experiences. Visual communication to them
> is the normal and exciting mode of learning.
> This visual learning cycle takes place in formal
> public education through about the third grade
> level. (p.4)

---

[4](Hill, 1978)

Verbal messages take over after the third grade and only limited number of visual messages are presented in the higher grades. This may be one factor contributing to a loss of interest so often manifested in senior grades. Hence, the multi-image character of media work may result in increased motivation and therefore achievement.

Media and the Low-Achievers

The interplay of instructional variables may even be more complex in the case of "low-achievers". Many educators have pointed out that language - verbal literacy - is deceptive with respect to communication. While studies, such as Bernstein's (1962) have demonstrated the correlation of differences in verbal expressive ability within various social classes, other researchers have shown that socially disadvantaged children perform better on measures of figural creativity than their 'advantaged' peers (Torrance, 1966). This seems to be in agreement with Salomon's stand regarding qualitative responses to particular media. Research dealing with "low-achievers" often suggests simplification of the curriculum and simplification of programs to basic skills. However, Loreten and Umans (1970) claim that the 'disadvantaged learners' need exactly the opposite of a dull curriculum. They are the ones who need exposure, discovery and not enclosure. Nemchin (1971) also suggests that students with educational problems may perform better with participation in materials development.

Several experiments carried out with regards of disadvantaged
learners seem to confirm the advantages of discovery oriented
learning for those learners. Besides the Cohen experiment
(1967) mentioned before, Allen, Sweet & Cooney conducted an
experiment in 1968 in Los Angeles with culturally disadvan-
taged students. They used five experimental treatments with
slide-sound presentations. All experimental groups made posi-
tive attitude shifts compared with a control group, but only
the treatment that included the option for the subjects to
select the next format to be viewed coupled with active par-
ticipation produced significantly greater attitude change than
the one demonstrated by the control group. It was concluded
that attitude changes can be produced by audio-visual materials
but that such changes are most likely when subjects are provided
an opportunity to participate actively by responding to the
content of the message. Students of lower mental ability were
most succeptible to attitude change in the experiment.

Shayon refers to a graduate study at the University of
Pennsylvania using videotape with educable mentally retarded
children (1973). He concludes:

> The students developed an increased sense of iden-
> tity and an awareness of self by instantaneously
> seeing and hearing themselves as others see them.
> (p. 14)

Shayon finds this in line with the assumption of social scien-
tists who believe that there are three basic elements of edu-

cation:, schooling, enculturation and learning and television seems to be one of the most significant influences in enculturation and in forming a personal identity.

Vickers (1972) has analyzed three methods of teaching of English on the attitude and achievement of educationally deprived children. Post-test results showed that the students who received an interrelated English program that used media (transparencies, recordings, and worksheets) extensively achieved significantly better results and showed significantly more positive attitudes toward English than subjects who received instruction without media.

A two-year project conducted in New College, Durham, England in 1976 investigated the effect that production of TV, film and tape-slide programs by pupils themselves would have upon their learning. Twenty teachers, thirty subject areas and ten schools were selected. Pupils of secondary age from all abilities and for a wide range of curriculum subjects were involved in the research. There was unanimous agreement among the teachers of the lowest-ability groups that the work was invaluable. Teachers were amazed to observe the high level of intellectual ability shown by children designated as of low ability (Lorac 1981). These pupils were more able speakers than writers which is most often the case with low achievers, and the planning of visual sequences helped them to organize their thinking. It was also noticed that working with colorful illustrations had a great influence on motivation and heightened

the enjoyment level of learners.

The above findings are also in harmony with Bruner's theory of instruction based on empirical work particularly with slow learners (1966). According to this theory, schools arrive too quickly to the symbolic modes of teaching for most children when their symbolic reasoning is still undeveloped. Consequently, their symbolic logic will be superficial and uncertain. Bruner, referring to his experience in the Judge Baker Guidance Center with 'learning blocks' says:

> There is a sharp distinction that must be made between... behaviour that copes with the requirements of a problem... Once our blocked children were able to bear the problems as set... their performance was quite like that of other children, although often less skilled since they had not quite learned to handle the technical instruments of the subjects they were supposed to be learning. (pp. 3 - 5)

The same could probably be said about active, audio-visual work that would give children a chance to explore difficult concepts thoroughly through the enactive and iconic modes.

The Durham project, for example, reports on a fifth-grade class whose attitude impressed the teachers very much. The class had the worst truancy record in their area yet none of the students of this class missed the health classes which used the method of the media

project mentioned before. They were non-exam, "bottom-band"
children, with very low academic expectation of themselves.
Their enthusiasm for this class was evident due to the fact
that instead of studying health as an academic subject from
texts, they were busy making animated films to explore the
concepts. However, in the process of illustration, for ex-
ample, the dangers of smoking, they had to grasp basic bio-
logical and physiological principles in order to communicate
their message and explanations. The teacher contributed the
success with this class to the Piaget theory which claims
that meaning for the learner consists of patterns of con-
cepts that are rooted in concrete, active experience (Piaget,
1971).

In summary, empirical studies and projects have been pre-
sented dealing with the three basic characteristics of active,
and media experiences: direct experiences with activity based
learning, visual communication and the effectiveness of this
approach with the low-achievers. In spite of numerous publica-
tions on the topic of visual literacy, very few studies take
into consideration the effects of active, student-produced
educational media materials on the achievement level of the
learners. The writer of this study hopes to fill in some gaps
in this area and is anticipating to generate more research in
this neglected field by reporting the findings of this experi-
ment.

Hypotheses

Hypothesis 1

Following the production of simple, educational media integrated with the standard curriculum, the experimental group results will show an improvement in the comprehension of the content presented as compared with the results of conventional teaching methods.

Hypothesis 2

There will be an interaction between teaching methods (media-activity and conventional) and levels of achievement (low, average and high) that will result in greater gains for the underachievers in the media treatment as compared with the gains of the "achievers".

CHAPTER 3

Method

Sample

The study involved 57, Level V-VI students (from so
called "split classes") from a PSBGM elementary school in
Montreal. Two intact classes were used: one class was the
homeroom class of the researcher. Subjects ranged in age
between 10 to 12 years. Roughly 60 % of the subjects were
males with the remaining 40 % females.

The school was located in the West End of the city
and its student population ranged from low to affluent
classes. However, since the school itself was located in a
suburb of relatively high socio-economic area, a number of
parents could afford to enroll their children in private
schools. From these homes mostly children who could not cope,
with the higher requirements of private school were attending
this school. Hence, there were relatively few learners with
outstanding academic aptitudes, and the achievement levels
designated low, medium and high in this experiment are re-
ferring to below average, average and above average standards
with only a small number of students - 10 out of 57 - over the
80th percentile rank.

Design

The study employed a 2 x 3 factorial design with two

between-group factors: <u>teaching method (conventional</u> and
<u>media productions)</u> and <u>achievement levels (low, medium and</u>
<u>high.</u> Due to limitations imposed by the school schedule, in-
tact groups were used. As a result, this study qualifies as
a "quasi-experimental" (Tuckman, 1972). To partly offset this
deficiency in design, two independent experiments were con-
ducted, using two different but related topics. For the first
part of the study, one intact class was assigned the media
treatment and the second class was receiving conventional
teaching, both involving the first topic: Reproduction of Plants.
For the second content, the intact classes were reversed in
terms of their treatment designation and topic to be covered:
Reproduction of Animals. (Figure 2)

The dependent variable was operationalized as the dif-
ference between a pre-measure taken before each of the re-
spective treatments and a post-test measure taken immediate-
ly afterwards. Therefore, there were two different scores, one
for each of the content areas.

As previously mentioned, the design included a blocking
variable or moderating variable which, for the purposes of
this study, was called achievement level. This variable was
operationalized based upon student scores on a standardized
achievement test (Gates, 1978). Students scoring above the
75th percentile were defined as high (above average) achievers;
between the 50th and 75th percentile as average achievers; and
below the 50th percentile as low achievers. These norms conform

TYPE OF INSTRUCTION
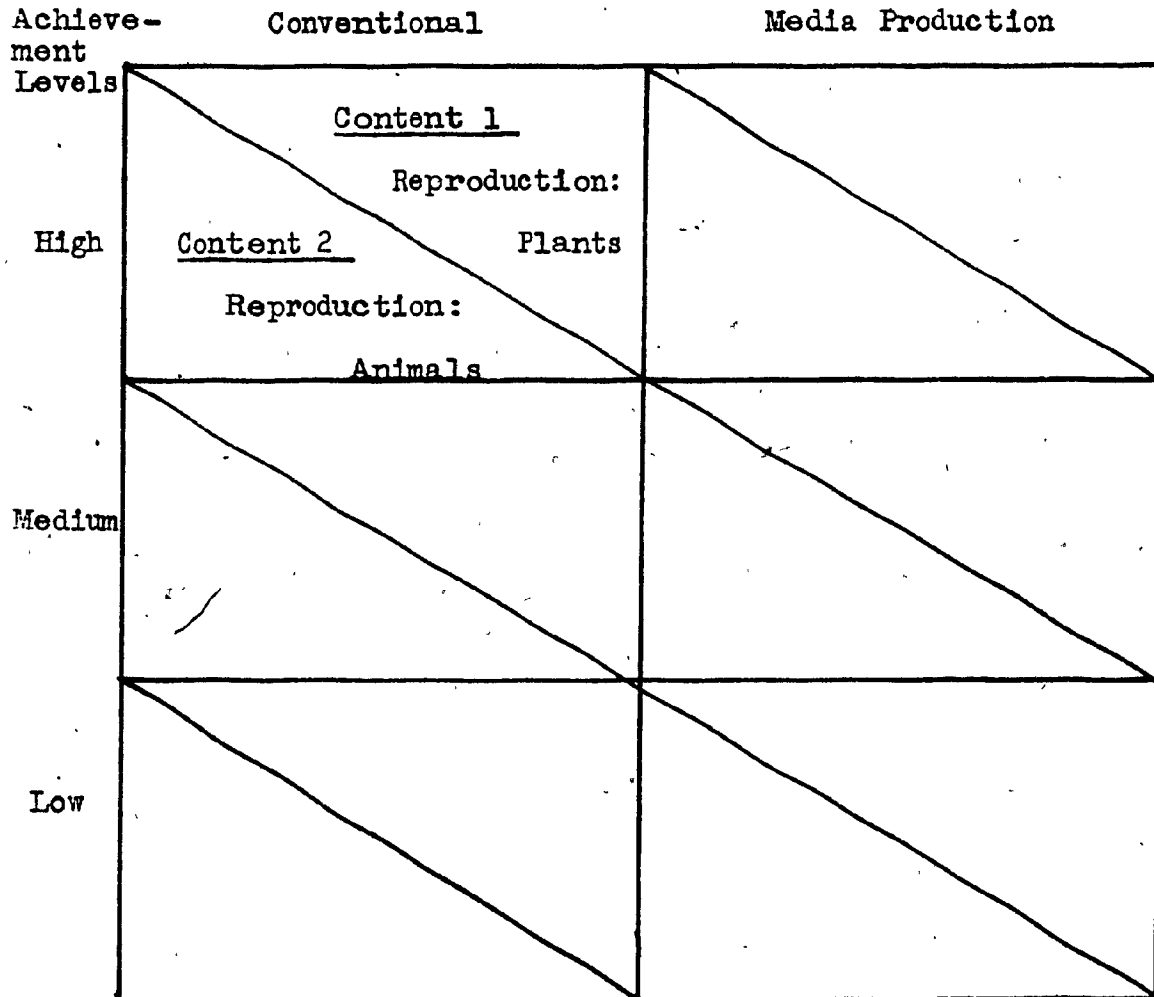
Figure 2. Illustration of the 2 x 3 factorial design with the two in between-group factors

to the customary grading criteria used by the teachers in the school in which the study was completed.

Procedure

The conventional treatment consisted of standard elementary classroom activities divided into three 45 minutes lessons, one additional review lesson and one period for the test. Class activities included teacher-initiated question-and-answer periods, blackboard illustrations, pictures from reference books and materials, diagrams, overhead transparencies as well as observation and experimentation with real plants, fruits, seeds and flowers.

The media treatment consisted of the same number of 45 minute periods. It started with a presentation of a slide-tape show, drawn and colored by Grade V-VI students of the researcher from previous media work. The topic of the slides varied from Animal Care to Multiple Sclerosis. After the presentation, sample storyboards and scripts were shown to the students who were then asked to produce a story-board of their choice. The experimenter explained some simplified "film vocabulary" terms, mainly types of "shots" (i.e.close-ups), using the "draw-on" slides as samples from the presented slide-tape show. Students were given a few days to produce their storyboards and researcher was available for assistance after school and during school breaks (recess, lunch).

After consultation with the experimenter, participants in the second lesson were asked to transfer their story-boards

into scriptforms; steps to follow in producing scriptforms were outlined to the students. Finally, during the third lesson, students were provided with a worksheet and a dialogue and were asked to produce the visuals for a storyboard and a scriptform on the given content.

Students were informed that artistic standards will not be required and that the grading of the visuals will be based on the relevance of visuals to the dialogues or as they were told "how well the pictures will match the sentences". Clarity and neatness though was emphasized. Students had a week to present their scriptforms, consisting of twenty-five to thirty frames.

During the fourth, review lesson, the best scriptforms, transferred into overhead transparencies and colored with markers, were presented to the classes. Dialogues were also taped and played with the transparencies. Students discussed these scripts with the guidance of researcher. Special emphasis was given to the appropriateness of visuals to the dialogue.

Children who did not complete their work were given additional days to complete their scriptforms before the test. In the conventional treatment children were asked to study their revised notes after the fourth, review lesson, for the test.

Scriptforms, as well as notes and pictures from conventional method activites were marked by researcher and marks

could be applied towards language arts, science and art
scores if class teacher preferred to do so.

The two units were taught in a 6-7 week period. Students were encouraged to spend additional time above and over the four 45-minutes lessons, doing research or completing the production, in school and/or at home.

Unfortunately, it was not feasible to produce the actual sides or filmstrips in this experiment. This was due to many reasons: psychologically, as well as in order to uniformally test the learning occurred, it would not have been advisable to let some children produce the actual slides and others not. To produce close to two-thousand slides would have not been financially possible considering the price of slides or 35 mm film and transparency markers. Nevertheless, all that was left from the production was the mechanical tracing of the script visuals on the slides or filmstrips.

The important learning goals of producing the slide-tape presentations were all attempted. Just to mention a few: children were involved in research in order to find pictures; in reading and understanding the dialogue; in comparing and choosing visuals; in constructing the right format; in deciding what material should be included; in identifying relevancy; reshaping and reducing size; evaluating content, sequence, clarity and relevancy through discussion, getting used to speaking into microphones; recording sound, and so on. Students were also asked to decide which of the completed scriptforms were the best to convey the content of the units. The size of the work-

sheet story-boards and scriptforms were the actual size
of the frames of the slides or filmstrips, providing prac-
tice in illustrating visuals in a relatively small format.

After the completion of the lessons and activities,
posttests were administered to all participants to evaluate
the difference in achievement between the two treatments.
The posttest questions were identical in both units with
the pretest questions administered before teaching the units.
Subjects served as their own control groups, using the re-
sults of the conventional instructional method in compari-
son with the media treatment results.

Materials

The content of the units - both from the field of
natural science - were similar in complexity as in the an-
ticipated interest levels.

Materials for the conventional treatment included:
chapters on reproduction from STEM textbook (Grade V-VI
levels), diagrams, pictures and blackboard illustrations,
vocabulary lists, overhead transparencies, reference books
from school library and various seeds, plants, fruits and
flowers. Notebooks were also used by students to record some
of the information.

For the media treatment, the material included work-
sheets for student for making storyboards, sample story-
boards and scriptforms, a list of steps to follow in prod-
ucing scriptforms and various slide-tape presentations of
work by students of similar age. None of the slide programs

were related to the topic of the study. Due to the early age of learners, the slides were "draw-on" slides with markers and the dialogue for the audio portion was provided for the students.

The tests - pre- and post - for both treatment and both contents, consisted of "fill-in the blank" type questions with a possible total score of 25. Both tests included fill-in diagrams. The format of the pre- and posttests for the respective content units were identical. (Appendix A and B) The tests were constructed and illustrated by the researcher and were used the first time for the purpose of this study.

CHAPTER 4

Results

Introduction and Hypothesis

The purpose of this set of studies was to investigate the hypothesis that activity-based media production when used as a classroom method, leads to higher achievement of specific content related goals. More specifically, the goals of this study were operationalized as the cognitive learning achieved from two units of instructions. As was noted before, two separate experiments were carried out relative to the goals of this study in order to reduce the possible bias resulting from using intact classes as the experimental sample.

- One unit of instruction was related to plant reproduction and the other was concerned with animal reproduction, forming the content basis for the materials and instructional procedures. During the first unit, class one (arbitrarily designated) participated as subjects in the media treatment and class two received the conventional teaching treatment. In unit two, class one received the conventional and class two was given the media treatment. The results of these independent experiments are summarized in this section of the thesis.

Experiment One - Plant Reproduction

Table 1 provides a listing of means and standard deviations associated with the conduct of experiment one. Both

pretest and posttest are reported broken dawn by the achievement level as a blocking factor.

Two-way analysis of variance with the pretest and posttest treated as repeated measures were performed on the data. Since the major aspect of the study lay in the relationships of pretest and posttest to the other independent factors, the between-group portion of the analysis was not considered pertinent to the analysis of the results; the comparisons were averaged across pretest and posttests. Table 2 presents the ANOVA summary table which was obtained as a result of this analysis.

As was mentioned, only the within-group portion of Table 2 is interpretable in view of the hypotheses as they were originally formulated. Therefore, the upper half of the table was disregarded. In the within group model the effect of Scores (pretest and posttest) and Scores by Group (S x G) do not relate directly to the test of the hypotheses. The impressive Scores effect, however, does indicate that, overall, student across all levels and treatments learned the content. The S x G interaction indicates that the levels of students (High vs. Medium vs. Low) performed differentially across the pretest and posttest. These results are not surprising nor particularly interesting.

Of interest, however, are the three way interaction of Scores by Groups by Treatments (Hypothesis 2) and the Scores by Treatments interaction (Hypothesis 1). As a result of this

Table 1

Means and Standard Deviation from Experiment 1

Across Achievement Levels

Groups	n	Pretest		Posttest	
		$\overline{X}$	SD	$\overline{X}$	SD
Media					
High	9	12.67	6.32	20.56	3.71
Medium	13	6.15	4.67	14.62	4.57
Low	6	4.00	1.89	6.67	4.97
Traditional					
High	10	8.20	2.82	13.90	3.60
Medium	10	4.90	2.18	10.50	3.14
Low	9	4.67	1.41	5.78	3.11

Table 2

ANOVA Summary of Experiment 1 Results

Effect	SS	df	MS	F	p
Groups (G)	1229.31	2	614.66	28.78	.001
Treatments (T)	209.78	1	209.78	9.82	.003
G x T	123.35	2	61.68	2.89	.06
Error	1089.36	51	21.36		
Scores (S)	741.75	1	741.75	92.62	.001
S x G	135.80	2	67.90	8.48	.001
S x T	32.77	1	32.77	4.09	.05
S x G x T	1.92	2	.96	.12	.89
Error	408.42	51	8.01		

analysis, hypothesis 2 was rejected. It was determined that
levels of subjects do not perform differentially in the two
treatments across the two dependent measures.

As can be seen in Table 2, the S x T interaction was
significant. Figure 3 provides a graphical representation of
the results of this interaction. Tukey's procedure was used
in conducting post hoc analysis in order to determine the
locus of this significant effect. Two tests were carried out,
one across treatments (Traditional and Media) at the level of
the pretest and another at the level of the posttest. As was
anticipated, the pretest means were not significantly differ-
ent ($p < .12$), indicating that the groups were similar in
their pre-experimental knowledge of the unit content. How-
ever, the difference between the Traditional Posttest and
Media Posttest was significant ($p < .02$), suggesting that the
media condition may have facilitated a more positive learning
experience for the subjects. To determine if the same relation-
ships held when the roles of the two classes was reversed,
Experiment 2 was conducted.

Experiment Two - Animal Reproduction

The means and standard deviations obtained from testing
in Experiment 2 are presented in Table 3. Again, two-way a-
nalysis of variance was conducted to test the differences in
groups, treatments and between pretest and posttest. The
ANOVA Summary table in Table 4 shows the results of this anal-
ysis. It is evident from this table that a similar relationships
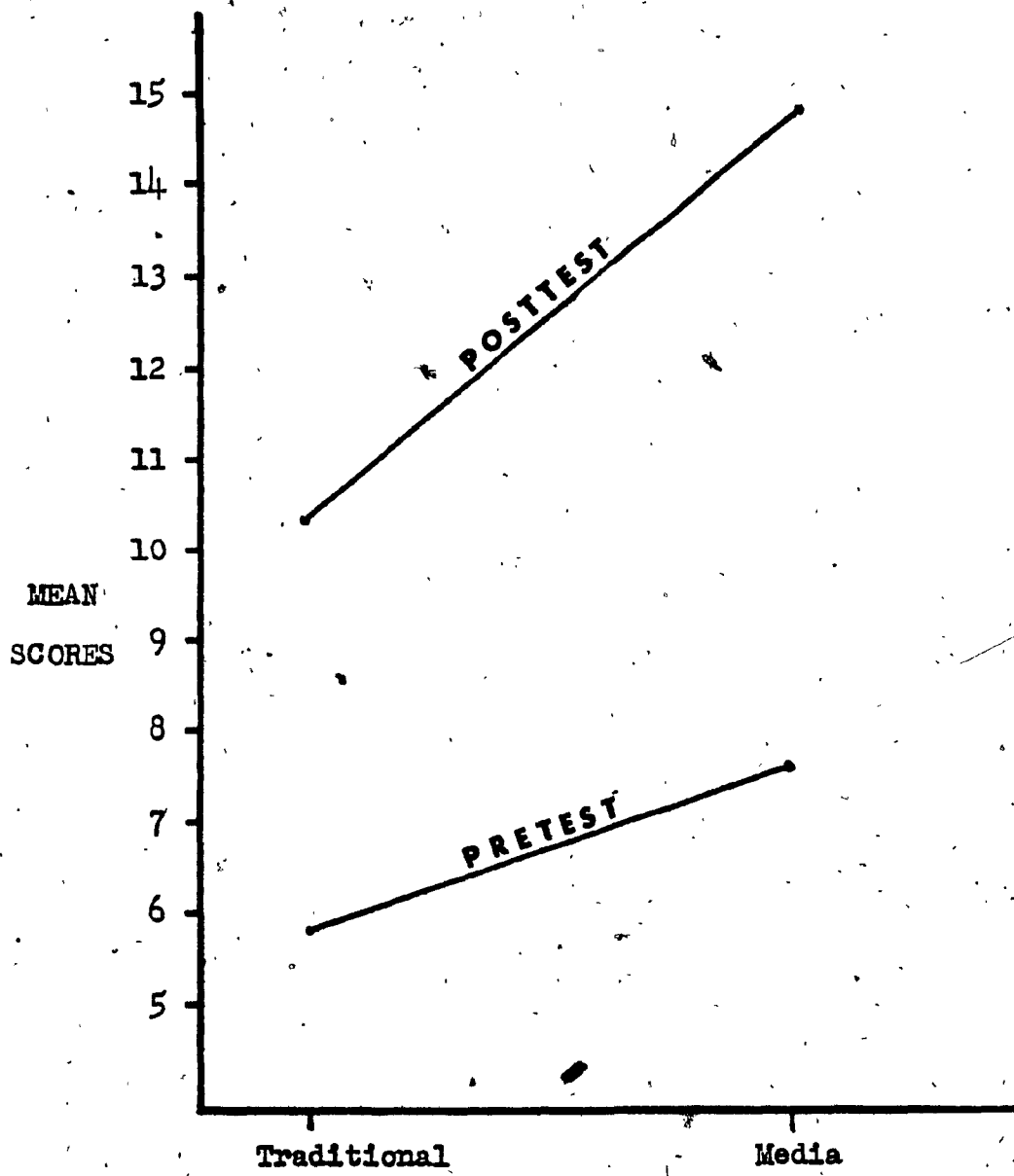
Figure 3. Comparison of mean scores by treatment
in Experiment 1. across all three levels
of achievement

Table 3

Means and Standard Deviation in Experiment 2

Groups	n	Pretest		Posttest	
		$\overline{X}$	SD	$\overline{X}$	SD
Media					
High	10	5.80	3.05	16.70	3.74
Medium	10	4.40	3.17	8.60	3.47
Low	9	3.11	1.76	6.67	3.20
Traditional					
High	9	12.00	6.04	18.56	6.36
Medium	13	7.15	3.02	11.15	4.95
Low	6	2.67	1.75	2.83	1.33

existed in the within-group portion of the design as were determined in Experiment 1. Again, there was a significant increase between the pretest and posttest and a significant interaction between the pretest-posttest and the factor groups.

As in the case of the first experiment, the S x G x T interaction was considered a test of hypothesis 2 (that low achieving learners would profit more from the media treatment that high or medium level learners) and the S x T interaction was a test of hypothesis 1 (that the media treatment would produce better learning results than the traditional method).

In the case of hypothesis 1, the results indicate that significant differences exixt between the two instructional treatments when tested across the prestest and the posttest. To demonstrate this interaction of treatments and testing, the graphic representation in Figure 4 was constructed.

It is evident from Table 4 that hypothesis 2 should be rejected. Although low achieving learners did profit differentially from the two methods, as shown in Figure 5 and 6, this effect was not potent enough to produce a statistically significant interaction.

Post hoc Analysis

Tukey analysis revealed a different pattern of relationships than were evident in Experiment 1. While in the first experiment, the groups did not differ on the pretest, but did in the posttest, in Experiment 2 differences were found in the pretest but not in the posttest.

Table 4

ANOVA Summary of Experiment 2 - Results

Effect	SS	df	MS	F	p
Groups (G)	1509.34	2	754.67	36.79	.001
Treatments (T)	61.99	1	61.99	3.02	.088
G x T	166.76	2	83.38	4.06	.02
Error	1046.27	51	20.52		
Scores	648.12	1	648.12	64.45	.001
S x G	211.51	2	105.76	10.52	.001
S x T	47.26	1	47.26	4.70	.035
S x G x T	24.39	2	12.19	1.21	.31
Error	512.89	51	10.06		
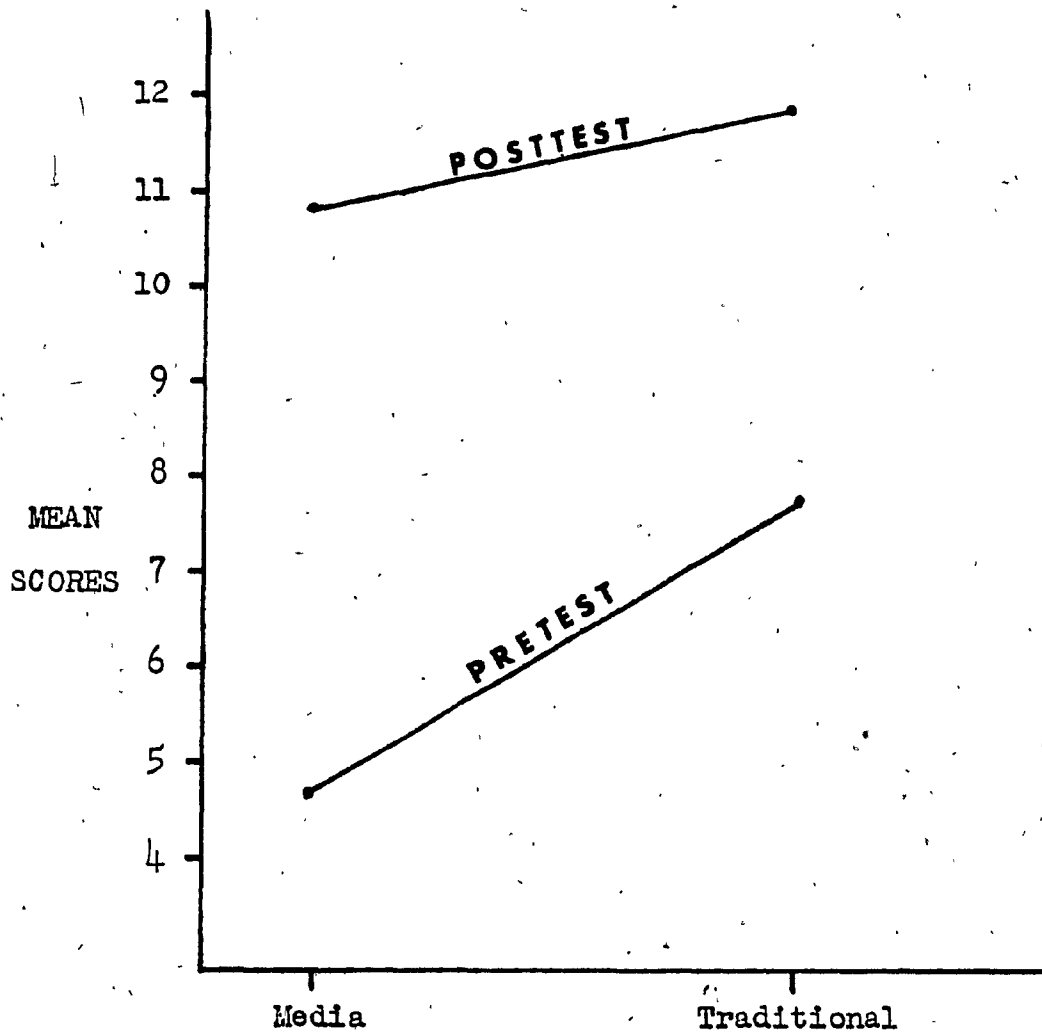
Figure 4. Comparison of mean scores treatment
by testing in Experiment 2 across all
three levels of achievement
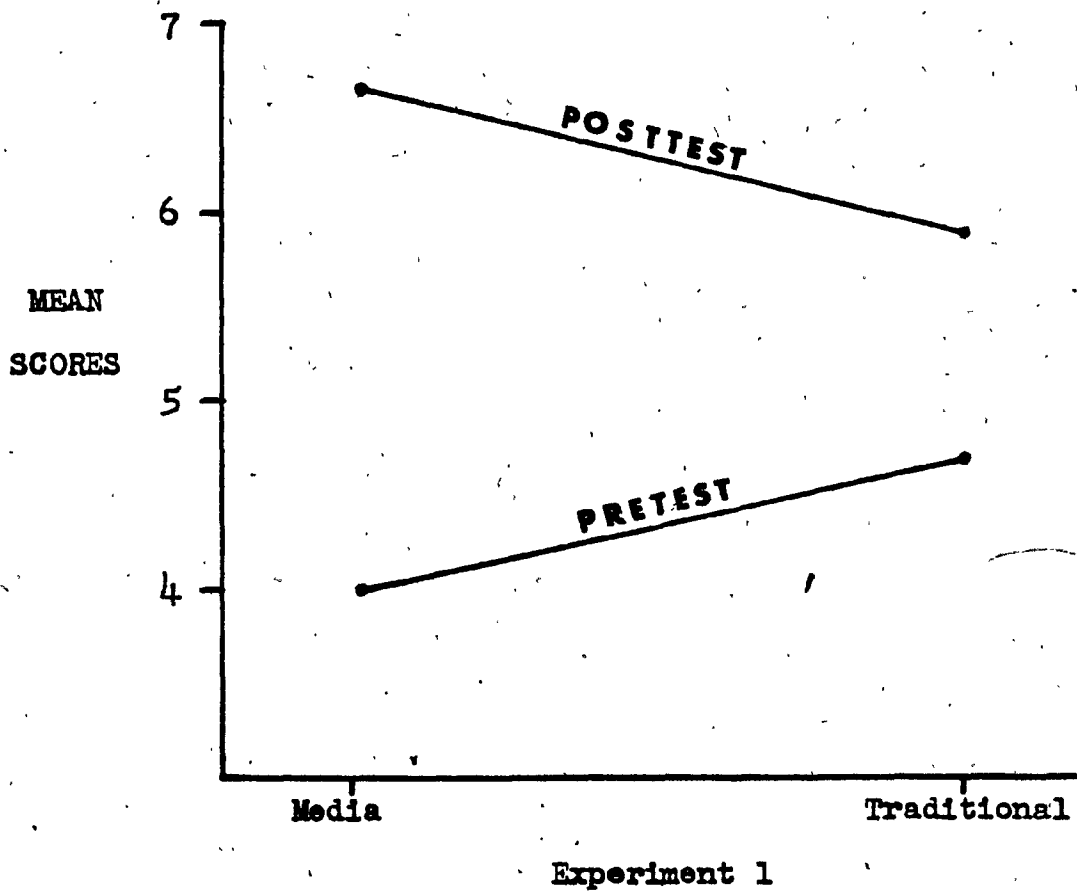
Experiment 1

Figure 5. Comparison of mean scores treatment
by testing of the low-achieving group
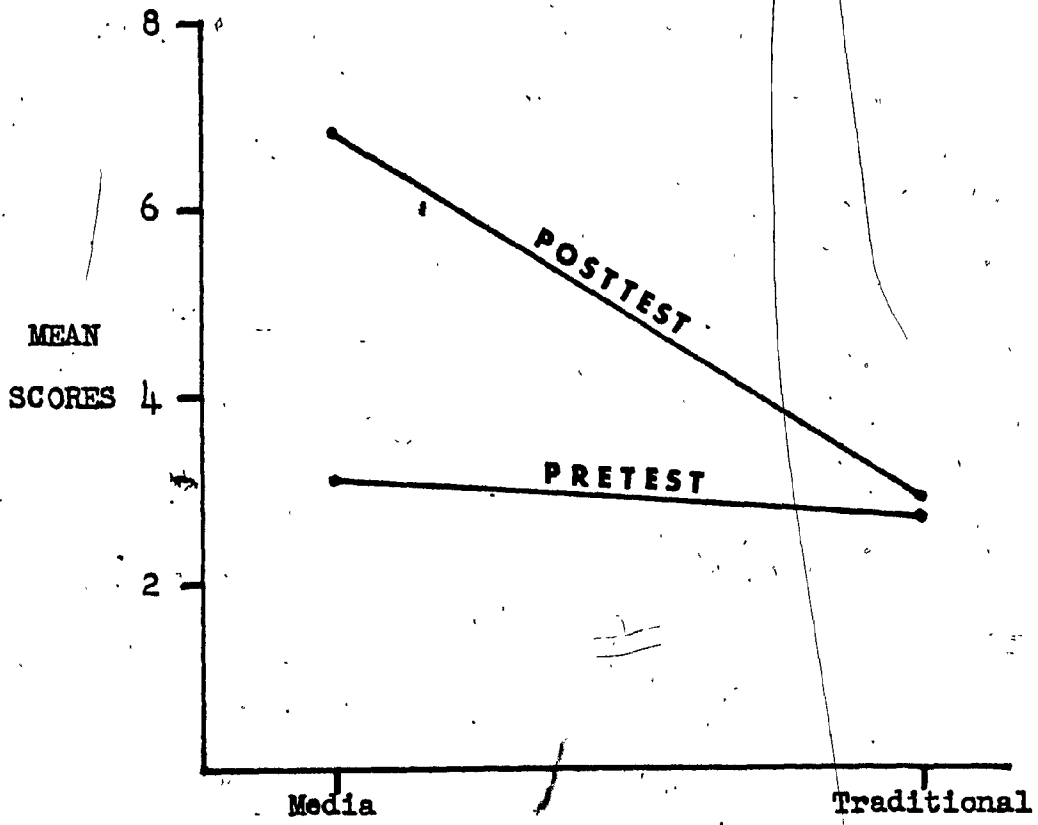
Experiment 2

Figure 6. Comparison of mean scores treatment
by testing of the low-achieving group

The pretest means (Media, $\overline{X}$ = 4.48; Traditional, $\overline{X}$ = 7.75) was significant (p< .03), but the posttest means (Media, $\overline{X}$ = 10.79; Traditional, $\overline{X}$ = 11.75) were not significantly different (p< .29). The results here, although conforming to a different pattern, represent essentially the same gain as was observed in Experiment 1. Apparently, even though the group began at different levels, the media condition was sufficiently potent to compensate for this initial difference in the pretest.

Summary of Results

In summarizing the results, it is evident that similar relationships exist in the within-group portion in both experiments. There was a significant interaction between the pretest and posttest and a significant interaction between the pretest-posttest and the factor groups.

The Scores by Groups by Treatments interaction did not support Hypothesis 2, therefore this hypothesis had to be rejected.

The Scores by Treatment interaction supported Hypothesis 1, in favour of the media treatment.

The Post hoc Analysis revealed that the media condition compensated for initial differences in the pretest.

The difference between the Traditional posttest and Media posttest was also significant, suggesting that the media condition have facilitated a more positive learning environment for the learners.

CHAPTER 5.

Discussion

This study represents an initial inquiry into the effects of students' participation in media production on their learning in the cognitive domain. Two experiments were conducted to test the hypothesis that student production related to a content area in elementary school instruction results in superior learning gains than conventional, verbally-based instruction in the same content area.

Although both experiments were analyzed using two-way analysis of variance with repeated measures, only the within group portion of the analysis tested the hypotheses directly. The results of these analyses as presented in Tables 2 and 3 respectively, seem to support the basic hypothesis, indicating that the media condition facilitated greater learning gains than the traditional method of instruction.

The findings are consistent with Bruner's theory (1968) that attributes basic benefits from discovery and activity oriented learning. For that reason it is difficult to argue that the benefits derived from this experience are solely related to the media treatment. It is conceivable that similar results would be achieved with any activity-based treatment of the content. However, these findings do extend the range of involvement-type learning activities to include those that deal with manipulation of imaginal as well as verbal

symbol systems. The results represented by Figure 3 also
support Luria's claim that empirical evidence of many edu-
cators suggests, that when learners are encouraged to create
images, the learning will be more powerful (Luria, 1973).
Although the pretest means in Experiment 1 were not signifi-
cant, the difference between the Media Posttest and Tradition-
al Posttest was significant, indicating the benefits of the
media treatment.

The results of the <u>post hoc</u> analysis are in agreement
with other findings (Biekert, 1971, Cohen, 1971, Levie, 1978)
demonstrating that even though the groups started from dif-
ferent levels, the media condition was compelling enough to
compensate for the initial differences.

-A second purpose of the experiment was to determine the
effects of activity-based media production on low-achieving
learners compared with high or medium level learners. It was
hypothesized that there would be an interaction between teach-
ing methods and levels of achievement resulting in a relative-
ly greater gains for the "underachievers". The evidence re-
presented in Table 2 and 4 strongly suggests that the null
hypothesis should be accepted since levels of subjects (i.e.
high, medium and low) did not perform differentially in the
two treatments. This finding, however, does not completely
contradict the observations of researchers such as Simonson
(1980), Nemchin (1971), Vickers (1972) and Lorac (1981) who
found that low ability learners were more successful in or-

ganizing ideas by planning a visual sequence. The analysis of the results, as shown in Figure 5 and 6 suggests that low achieving learners profited differentially from the two methods in favour of the media treatment, but only when compared with same subjects' achievement in the traditional method.

Certain limitations are inherent in most thesis undertakings. Critics of this study may consider the fact that the experimenter was the class teacher of one group involved in the research and carried out the experiment with both groups herself to constitute a bias which would threaten the internal validity of the study. This assumption could at least be partially debated upon grounds that the results were replicated in the second experiment. This counterbalancing of intact treatments across experiment was designed to reduce this threat. However, it should be noted that even this procedure does not substitute for random assignment of subjects to treatments and more substantial measures to guard against instructor bias.

Another objection may be raised over whether the positive effects of the media treatment was due to stable characteristics of the method or are the result of novelty. This is often the difficulty in experiments such as this one where new methods (this one may not be new but it is certainly unpracticed) are being compared with traditional methods that are currently in wide practice. Using naive subjects i.e. those having received no instruction jeopardizes external va-

lidity, while employing a new method with subjects accustumed to old methods reduces internal validity. Use of an attenuation period is often suggested (Campbell & Stanley, 1962), but this was not possible in the limited time available for the experiment. However, since the homeroom class (media first, traditional second) was exposed to media work for over six months by the time of the experiment and produced favorable results when given the media treatment, tentatively suggests, that novelty is not the primary cause of observed effects.

It is recognized, though, that any method, however interesting and exciting initially, can become boring if used extensively. Activity-based learning is probably no exception. It is argued on the strength of the researcher's experience, however, that active involvement, and especially creating media products, has a far longer interest span than traditional teacher-directed instructional method. This is probably due to the fact that media production lends itself to a much wider choice of activities and a variety of approaches than verbally-based instructions. The researcher also suggests that media-based activities should be interchanged with traditional activities to produce the maximum interest level.

A methodological weakness of this experiment was that subjects were not assigned to conditions at random. This was precluded by schedules of instructions in the school in

which the experiment was conducted which would have caused a major conflict in completing the testing within the available resources and time. However, this was partially compensated by carrying out two separate experiments with counterbalanced treatments. Also, the analysis shown on Table 1 suggests that there was no sampling bias between the treatment groups since the initial performance on the pre-experimental knowledge indicates that the groups were quite similar.

The significant difference between the pretests in Experiment 2 could probably be attributed to the fact that one of the two classes (the experimenter's homeroom) more effectively generalized from the instruction and testing in Experiment 1 to the pretest of Experiment 2. However, as reported earlier these initial gains were apparently offset and reduced by the traditional instruction treatment.

Probably the most substantial limitation of the study was the fact that it was not possible to isolate the effects of the media treatment from the effect of activity learning so as to test the unique contribution of media to the learning process. Imagery studies have shown that construction of images (internalized external representations) results in more positive learning gains than viewing pre-constructed images, suggesting that the construction process (schema development) may be more important than the symbolic form (words or pictures) of the construction. It is conceivable, then, that

any activity-based instructional treatment which encourages active construction would out-perform more passive forms of learning experiences, whether verbally or audio-visually based. As yet, however, this question has not yet been succesfully addressed, eiher theoretically or empirically.

Based on the results this writer would suggest that additional research could be instituted into the nature of interaction between symbolic form and activity-reception in children's learning. Just as "doing writing" produces greater verbal literacy than reading, so should "doing media" produce greater competency in non-verbal symbolic forms than viewing media. However, it is the possibility of differential outcomes of such diverse experience (viewing vs. doing) in combination with diverse symbolic forms that may be of particular interest in future investigations.

Further research may consider the comparison of achievement gain between other novelty methods (i.e. model building) versus media production, or even passive media methods with activity based media work. There is also a need to conduct research comparing different strata of population. Age, socioeconomic level, cultural level, sex and other groups may form the subjects of such studies.

Another point of interest raised by this study may well be the effect of student production on the learners' self-esteem. Studies in the affective domain may include comparisons of acquisition of social skills such as cooperation,

leadership potentials, communication skills, participation in group work, the effect of improved motivation on clarifying learners identity, etc..

As mentioned earlier, the statistical analysis did not support the hypothesis that "underachievers" benefit differentially compared with the other groups under the media treatment. However this may have been due to the fact that there were not enough subjects in this group to adequately test the hypothesis. Figures 5 and 6 suggest that at least some of the low achieving learners also benefited from the media conditions and re-examination of the raw data confirmed that one of six and two of nine in their respective groups effectively improved from failing to passing grade and almost all of the others increased their gains in achievement. Since similar gains would bear great importance for the low-achieving learners as well as for the instructors of such learner, the writer would suggest that further research should be implimented into the effect of media production on the "underachievers". Such research could especially be interesting if the researcher would have access to the same student population for a longer period of time and would have larger groups to work with. The writer hopes that the self-instructional script-form in Appendix H provided for future instructors of students and experimenters, using student produced media, will prove to be helpful to readers of this study.

REFERENCES

REFERENCE NOTE

1. MacGinitie, W. H. <u>Gates-MacGinitie Reading Tests</u>,
    Don Mills: Thomas Nelson & Sons (Canada) Limited,
    1979.

REFERENCES

Amiran, G.T. The retention by elementary school children of natural science material and of science attitude and interest changes following a program of science teaching by television.(Doctoral dissertation, Boston University, 1962) Dissertatiton Abstracts, 1962, 23, 2414.

Anderson, J.R. Arguments concerning representations for mental imagery. Psychological Review, 1978, 85 249-277.

Anderson, R.H. Selecting & developing media for instruction. Toronto: Van Nostrand Reinhold, 1976.

Allen, W.H., Sweet, B.,& Cooney, S.M. Effects of audio-visual materials on changing the attitudes of culturally disadvantaged students. Los Angeles: University of Southern California, 1968. (ERIC Document Reproduction Service No. ED 020 298)

Allen, W.H. Intructional Media Research: Past, present, and future. AV Communication Review, 1971,19, pp.5-18.

Bernstein, B. Linguistic Codes, hesitation phenomena and intelligence. Language and Speech, 1962, 5,(1) 31-46.

Biekert, R.G. An experimental comparison of two methods of teaching numerical control manual programming concepts: Visual media versus hands-on equipment.(Doctoral dissertation, Arizona State University, 1971) Disserta-

tion Abstracts International, 1971, 32, 1315A

Bosworth, G. Opening remarks, 22nd Lake Okoboji Educational
Media Leadership Conference, Milford, Iowa, August 6,
1976 (cited in Hill, 1978)

Bruner, J.S. On Knowing: Essays for the Left hand. Atheneum:
New York, 1968.

Bruner, J.S. The Process of Education. Harvard University
Press: Campbridge, 1966.

Campbell, D.T.& Stanley, J.C. Experimental and Quasi-Experi-
mental Designs for Research. Chicago: Rand McNally
Publishing Company, 1963

Carpenter, C.R. A theoretical orientation for instructional
film research, Audio-Visual Communication Review, 1953,
1, 38-52.

Carroll, L.J. Words, Meaning and Concepts. Harvard Education-
al Review, 34, 1964, 178-202.

Cohen, H.L. Motivationally Oriented Designs for an Ecology
of Learning. Unpublished manuscript. Institute for Be-
havioral Research, 1967.

Dale, E. Audio-Visual Methods in Teaching. Holt, Rinehart &
Winston: New York, 1969, p. 108

Dator, J.A. The pedagogy of the oppressed North American
style, McGill Journal of Education, 1971, 12, 57-72.

Dewey, J. My pedagogic Creed. School Journal 54, (3) January
16, 1897, (in Dewey on Education, New York:Teachers
College Press, 1967.)

Dwyer, F.M. Strategies for Improving Visual Learning.
State College, Penn.: Learning Services, 1978

Eisner, E.W. The Role of the Arts in the Invention of Man.
(Paper delivered to the 23rd World Congress of I.N.S.
E.A. Aug.78) cited in Lorac, 1981, p.10.

Ely, D.P. Current Trends in A.V. Technology, Paper presented
at the biennial conference of the Library Association
of Australia, Hobart, Tasmania, Aug. 30, 1977, p.7.

Ferkiss, V. The Future of Western Civilization, New York:
G. Brayiller, 1974.

Geller, R. & Laybourne, K. Doing the Media. New York: Mc-
Graw Hill, 1978, p. 7.

Hall, K.A., Mitzel, H.E., Riedesel, C.A., Suydam, M.N.,
Trueblook, C.R. & Mechlin, S.W. Inservice mathematics
education for elementary school teachers via computer-
assisted instruction. University Park: The Pennsylvania
State University, 1969. (ERIC Document Reproduction Ser-
vice No. ED 076 043)

Hartman, F.R. Recognition learning under multiple channel
presentation and testing conditions. AV Communication
Review, 1961, 9 24-43.

Heinich, R. Molenda M., Russell J.D., Media and the New
Technologies of Instruction. New York: John Wiley &
Sons Inc., 1982.

Hill, H.E. Communication research and instructional tech-
nology. Educational Communication and Technology, 26,
(1) 1978. 47-53.

Hoban, C.F. Jr. an Ormer, E.B. Instructional Film Research 1918-1950,. New York: Arno Press & the New York Times, 1970.

Hsia, H.J. The information processing capacity of modality channel performance. AV Communication Review, 1971, 19, 51-75.

Illich, I. Deschooling Society. New York: Harper & Row,1972.

Laybourne, K. Doing the Media. New York: McGraw Hill, 1978.

Levie, W.H. A prospectus for instructional research on visual literacy. Educational Communication and Technology, 26 (1) 1978, 25-36.

Levie, W.H., & Dickie, K.E. The analysis and application of media. In R.m.Travers (Ed.) Second handbook of research on teaching. Chicago: Rand McNally, 1973.

Levin, J.R., Lesgold, A.M. On pictures in prose. Educational Communication and Technology, 26 (3) 233-243.

Lorac, C. & Weiss, M. Communication and Social Skills. Exeter:.Wheaton & Co.Ltd., 1981.

Loretan, A. & S. Umans, Teaching the Disadvantaged, New York: Teachers College Columbia University, 1966.

Luria, A. R. & Yudovich F. I. Speech and the Development of of Mental Processes in the Child. Harmondsworth,Penguin,1971.

Luria, A. R. Working Brain: Introduction to Neuropsychology -.Harmondsworth; Penguin, 1973.

Masters, J.C. and Branch, M.N. A comparison of the relative effectiveness of instructions, modeling and reinforce-ment procedures for inducing behavior change, Journal

59

of Experimental Psychology 80, 1969.

Meyerhenry, W.C. (ed), _Media and Educational Innovation._
Lincoln, Nebraska: The University of Nebraska Press,
1964.

McLuhan, M. _The Medium is the Message._ (M. McLuhan & Quentin
Fiore, coordinated by Jerome Agel) New York: Random
House, 1967.

McLuhan, M. _Understanding Media: The Extensions of Man._
New York: McGraw Hill, 1964.

Mitchell, D. _A Proposal for Programmatic Research in Train-_
ing Learners as Educational Technologists. A paper pre-
sented to Canadian Educational Research Association, St.
John's, Newfoundland, Canada, 11th June, 1971. (Available
from author, Director, Graduate Programme in Ed. Tech.
Department of Education, Concordia University, Montreal)

Morris, C.W. _Signs, Language and Behavior._ N.Y.:Prentice Hall,
1946.

Nemchin, J. Help for the reluctant learner. _Educational_
Media, vol. 3 No. 1, February, 1971. 26-29.

Olson, D.R. & Bruner, J.S. Learning through Experience and
Learning through Media. In D.R. Olson (Ed.) _Media &_
Symbols: The Form of Expression, Communication and
Education. The 73rd yearbook of the National Society
for the Study of Education. Chicago: The University of
Chicago Press, 1974.

Piaget, J. _Biology and Knowledge._ Chicago: University of
Chicago Press, 1971.

Reid, J.C. and MacLennan, D.W. Research in Instructional Television and Film. Washington, D. C., U.S. Office of Education, 1967.

Salomon, G. Interaction of Media, Cognition & Learning. San Francisco: Jossey-Bass, 1979.

Salomon, G. On the future of media research: no more full acceleration in neutral gear. Educational Communication and Technology, 26 (1) 1978, 37-46.

Shayon, R.L. Education, media and identity. A.V. Instruction, February, 1973.pp. 10 - 15.

Simonson, M.R. Media and attitudes: a bibliography part 2. Educational Communication and Technology, 28 (1) 1980, 47-61.

Taba H. Curriculum Development: Theory and Practice. New York: Harcourt, Brace & World, 1962.

Toffler, A. Future Shock. New York: Bantam Books, 1970.

Toffler, A. The Third Wave. New York: William Morrows, 1980

Torrance, E.P. Torrance Tests of Creative Thinking. Princeton: Personnel Press, 1966.

Tuckman, B.W. Conducting Educational Research. Second Ed. New York: Harcourt Brace Jovanovich, 1978.

Tyler, R.W. Basic Principles of Curriculum and Instructions. Syllabus for Education 360, Chicago: University of Chicago Press, 1950.

Vickers, N.L. An analysis of three methods of teaching English on the attitude and achievement of emotional-

ly deprived children. (Doctoral dissertation, Mississippi State University, 1972). Dissertation Abstracts International, 1972, 33, 1425A.

Vigotsky, L.S. Thought and Language. Cambridge, Mass.: M.I.T. Press, 1962.

APPENDICES

APPENDIX A

Pre- and Posttests
Unit I - II

APPENDIX

Pre- and Post Test
Unit I

Unit I. Reproduction - Plants

Name _____ Grade ____

School _____ Teacher _____

Part I.

Directions: For each word in List 1, choose the correct answer in
List.II. Write the letter of the definition in the blank
in front of the word. You will not use all of the answers
(definitions) from List II.

LIST 1	LIST II
_____ cell	A. male structure in flower
_____ organism	B. early stage of what develops from fertilized egg
_____ seed	C. union of sperm and egg cells
_____ ovary	D. part that is most highly colored in flowers
_____ embryo	E. an embryo with food and protective cover
_____ egg	F. where egg cells are formed
_____ sperm	G. female structure in a flower
_____ fertilization	H. making a copy
_____ anther	K. male plant structure that often gets carried to another plant, or another part of the same plant
_____ pistil	L. the swollen part of a stamen, where pollen is formed
_____ pollen	M. the basic unit of a living matter, usually very small
_____ stigma	N. a living thing
_____ stamen	O. a female cell
_____ reproduction	P. a male cell
_____ generation	R. sticky top on top of flower
_____ sexual	S. section in ovary
_____ asexual	T. group with members of about same age (born at about the same time)
_____ plants and animals	U. joining of a male and female cell
_____ ovule	V. two basic groups of organisms
	W. reproduction without male and female cells
	Y. the stem of the flower

Part II. Directions: Label the part of the flower below. Use labels
from the list below:

Pistil   Stamen   Petal   Ovary   Stem   Anther
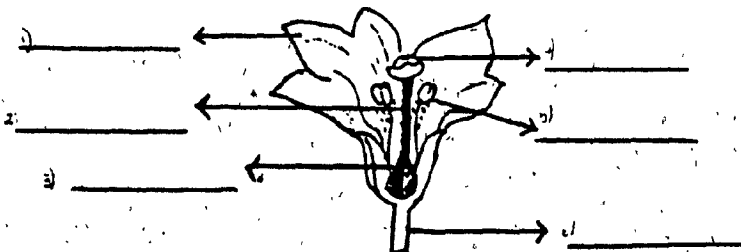
APPENDIX

Pre- and Post Test
Unit II

Unit II. Reproduction - Animals   2.)
                                   -Mammals

Name _____ Grade ____

School_____ Teacher _____

Part I.
Directions: For each word in List I, choose the correct answer from
           List II. Write the letter of the definition in the blank
           in front of the word. You will not use all of the answers
           (capital letters) from List II.

List I		List II
_____	species	A. animals with milk producing glands bearing their youngs alive
_____	genus	B. food for embryo containing fat
_____	offspring	C. connects embryo to placenta
_____	reproduction	D. joining of egg cells with sperm cells
		E. one kind of living things
_____	sexual reproduction	F. food for embryo with protein
_____	mammals	G. young copies of mature organisms
_____	egg yolk	H. an ovary
		I. fertilization
_____	egg white	J. group of several species that are similar in a way
_____	uterus or womb	K. producing copies that ensures continuation of species
_____	placenta	L. where the embryo develops
_____	umbilical cord	M. a mature egg cell in mammals
_____	vagina	N. birth canal
		O. fertilizing fluid consisting sperms
_____	birth sac	P. membrane covering fertilized egg to prevent other sperms entering
_____	ovum	R. passageway for fertilized egg in mammals
_____	fallopian tube	
_____	semen	S. contains arteries and veins for embryo and leaves mother's body after birth of offspring
_____	zygote	
_____	ovary	T. protects embryo as a shock absorber
		U. releases the egg cell in mammals
_____	embryo	V. a male cell

Part II. Directions: Label the parts shown with arrow and a blank line.
        Use labels from the list below:

        Birth sac   Umbilical cord Placenta Ovary Uterus Vagina

MAMMAL
EMBRYO

SPERMS   EGG   FALLOPIAN
                TUBE

4) _____

5) _____

6) _____

FEMALE REPRODUCTIVE
ORGAN
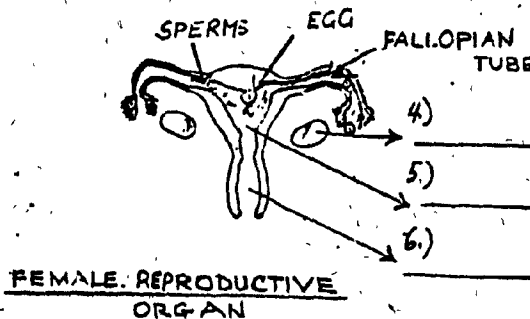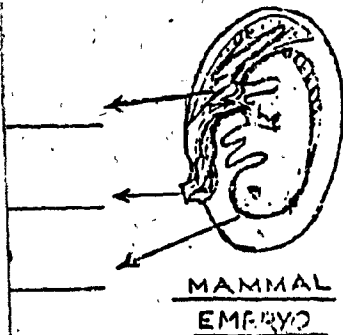
APPENDIX B

Fill-in Diagram-Sample
Conventional Method

APPENDIX B

Fill-in Diagram (sample)
(Conventional treatment)

PEPRODUCTIVE ORGANS
OF PLANTS

NAME

GRADE

ROOM

PETAL ←

STAMEN ←

OVARY ←

→ STIGMA

→ ANTHER

→ PISTIL

→ STEM
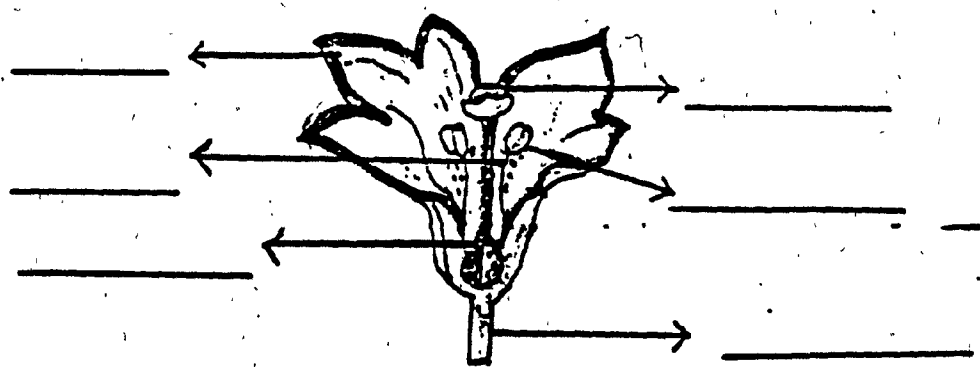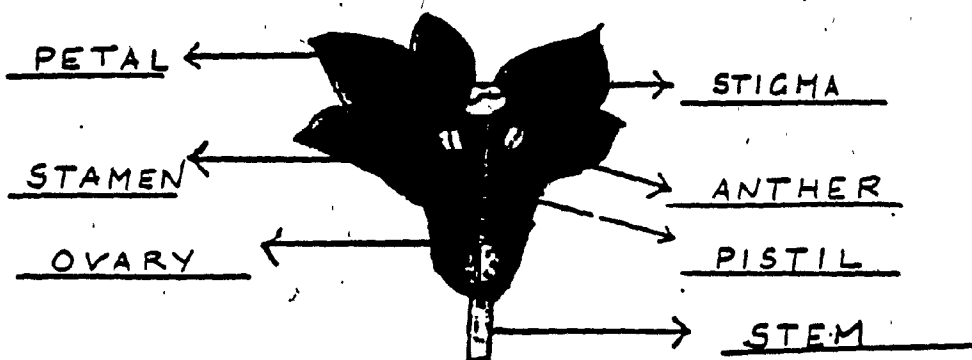
APPENDIX C

Sample Storyboards
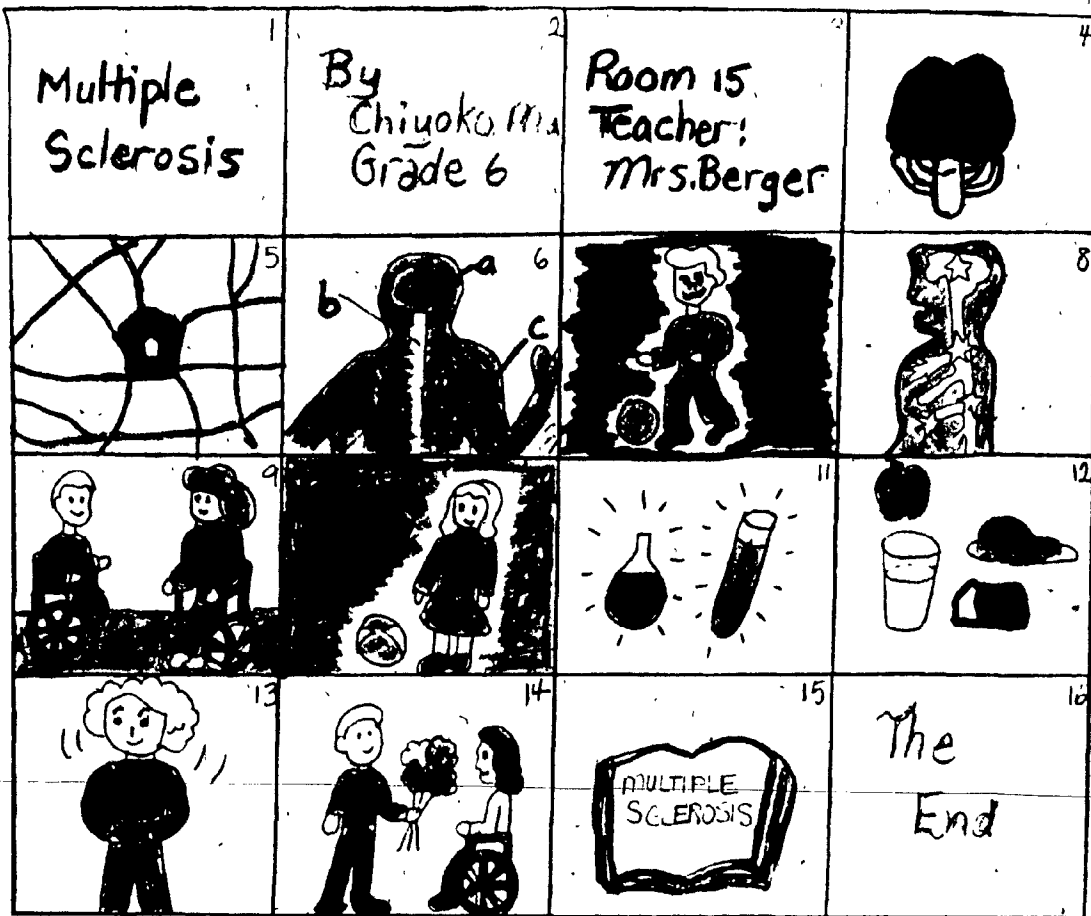
Storyboard Dialogue – Multiple Sclerosis

1-3   Music

4. This picture shows the brain from the front view.

5. This shows the nerves that sends messages to all parts of your body.

6. Here you can see the brain, the spinal cord, and the nerves.

7. Here is a boy kicking the ball. The brain is sending the nerve messages to kick the ball.

8. You can see that here are spots on the nerves. These are hardenings of the protective nerve-convering in scattered areas throughout the central nervous system.

It means that the brain can't send messages to all parts of your body.

9. Here you can see that there are two people who are disabled by Multiple Sclerosis.

10. You can see that the girl is standing. She can not bounce or kick the ball, because she has Multiple Sclerosis and her brain can't send messages to her hand or feet.

11. Scientists are trying to find a cure for Multiple Sclerosis, so to heal the disabled people.

12. Eat healty food from all four food group to avoid Multiple Sclerosis.

13. And also excercise to stay healty and growing.

14. You shouldn't laugh at people who have them. They are already suffering enough. And you should keep them happy as if they don't have disease at all.

15. Don't think Multiple Sclerosis is nothing. It disables lots of people. And you may be the next victim. And if you want to find out more, look in the library for books on MS.   Thank - you!

Storyboard 2
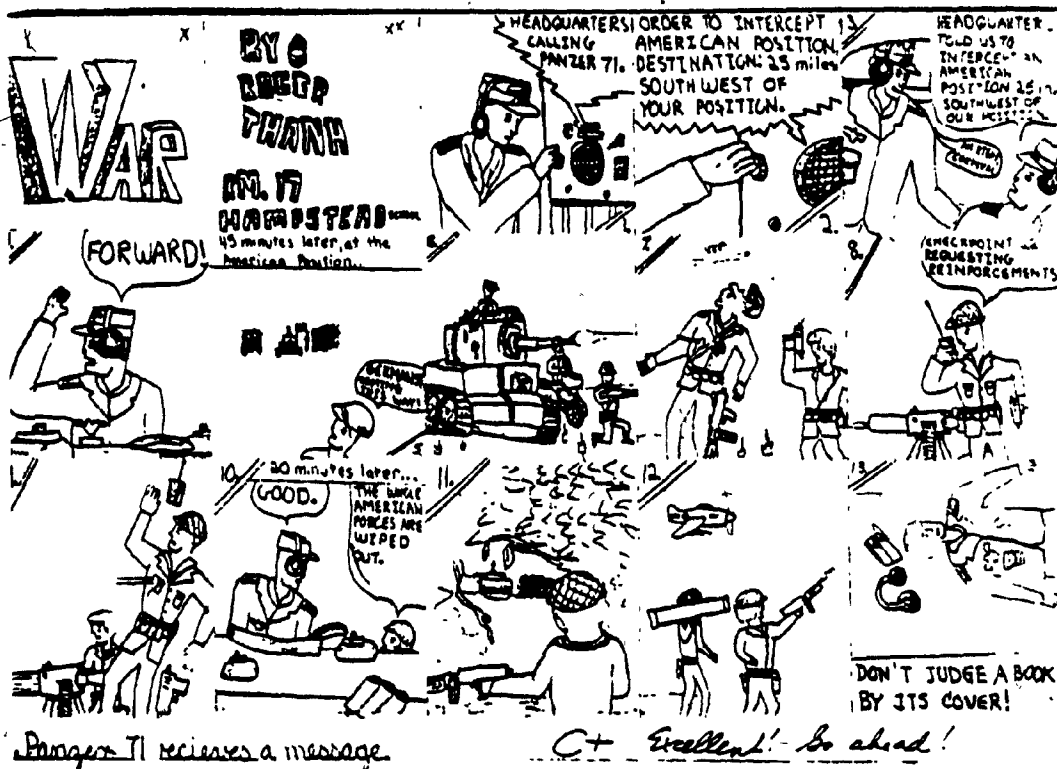
1. Panzer 71 recieves a message.

2. Orders are given through the radio.
3. The german radioman tells his commander about it
4. The commanders orders his soldiers to go "forward" to the american position

5. The americans shot the germans

6. The germans start shooting
7. The americans start shooting
8. The american radioman calls for help

9. The american radioman gets shot!
10. The battle is over, but noone has won yet because...
11. ...american reinforcements are waiting in the bushes.
12. The americans attack,... and win!
13. It all shows that you can't judge a book by its cover!

APPENDIX D

Sample Scriptforms

1-3 DIALOGUE

Multiple Sclerosis
By: Chiyoko Ma
Grade: 6 Room: 15
Teacher: Mrs. Berger

VISUAL

Music

---

4 DIALOGUE

VISUAL

This picture shows the brain from the front view.

---
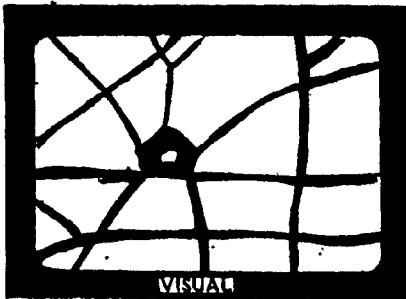
5 DIALOGUE

VISUAL

This shows the nerves that send messages to all parts of your body.
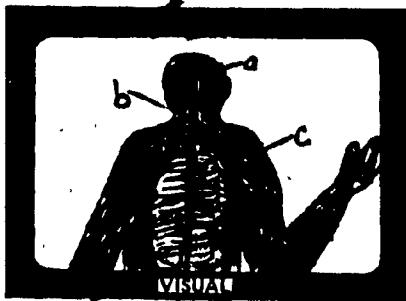
---

6 DIALOGUE

VISUAL

Here you can see the brain, the spinal cord, and the nerves.

---

7 DIALOGUE

VISUAL

Here is a boy kicking the ball. The brain is sending the nerve messages to kick the ball.
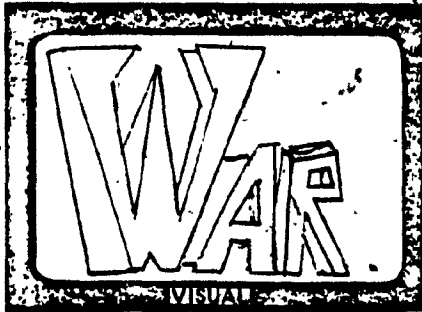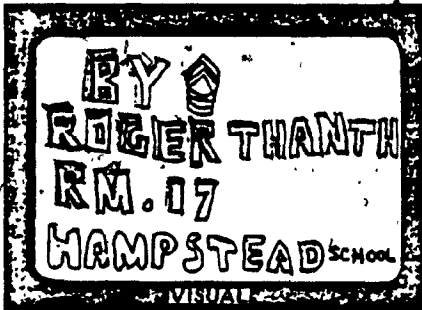
	X DIALOGUE	Music
	XX DIALOGUE	Music getting louder.
	1 DIALOGUE	Panzer 71 receives a message.
	2 DIALOGUE	Orders are given through the radio.
	3 DIALOGUE	The German radioman tells his Commander about it.
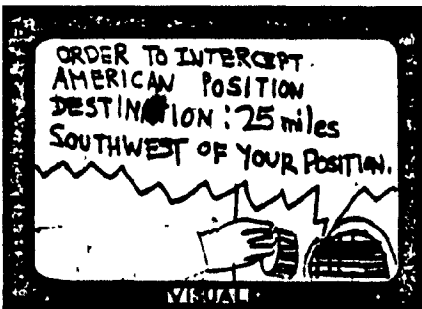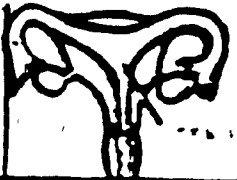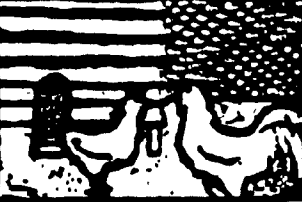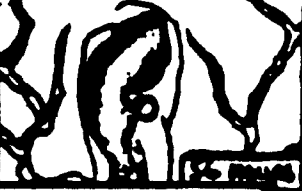
APPENDIX E

Sample Worksheet

APPENDIX E-1
Worksheet for drawings
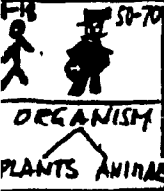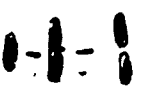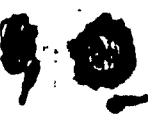
Title *name* Gr. Year 1982	← 1)	[WORK COPY] ✓ 10.)		← 19.)
done for *you*	← 2)	done	← 11.)	← 20.)
done	← 3.)		← 12.)	← 21.)
	← 4.)		← 13.)	← 22.) — done
	← 5)		← 14.) — done	← 23.)
	← 6.)		← 15.)	← 24.)
	← 7.)		← 16.)	← 25.)
	← 8.)		← 17.) — done	← 26.)
	← 9.)		← 18.)	← 27 FRAMES

A ——— ROGER PRODUCTION

APPENDIX – E-2 _Completed Worksheet_

Title NAME CONNIE gr-6 Year 1982	1.)	(SAMPLE)	10.)		A.)
done	2)		11.)		20.)
done	3.)		12)		21.)
	4.)		13)	done	22)
	5.)		14)	done	23.)
	6.)		15.)	PAGE	24.)
	7.)		16.)		25.)
	8.)		17.)	done	26)
	9.)		18.)		27.)

APPENDIX F

Completed Scriptforms

Unit I

Reproduction of PLANTS	**1.** <u>" Reproduction of Plants"</u>
By Chiyoko Ma Gr.6 Rm 15 Hampstead School teacher Mrs Berger 1982	**2.** "By Chiyoko Ma, Grade 6 Room 15 Hampstead School Teacher Mrs. Berger — 1982
bacteria	**3.** An organism is a living thing that needs to be born that needs breathing, developing and that can reproduce or multiply itself."
ORGANISM PLANTS ANIMALS	**4.** "We may group organisms into sub group, Such as several generations. Generation is a group with members of about he same age. Or we may group organisms into 1) PLANTS 2) ANIMAL
	5. " A cell is the smallest basic unit of an organism."
	6. "Reproduction means: making a copy of its own kind. There are two basic types of reproduction: Sexual reproduction is the joining of a male and a female cell."
SPLITTING CUTTING	**7.** " The other is the asexual reproduction which does not need the joining of a male and a female cell Splitting is one kind of asexual. Another type is cutting. A stem from a plant placed in water will start growing roots and become another plant"
	8. "Most plants are reproduced through sexual reproduction that takes place in the flower in most plants."
	9. " Here the diagram shows the whole flower."

	10. "Here you can see the <u>petal</u> of the flower which is shaded in."
PISTIL	11. "Here the <u>pistil</u> is shaded in which is the female organ of the flower."
STYLE	12. "<u>Style</u> is another part of the female structure of a flower. A stigma is the sticky top which is on top of the pistil."
STAMEN	13. "A <u>stamen</u> is the male structure in a flower. An <u>anther</u> is the swollen part of a stamen, where pollen is formed."
STAMEN & POLLEN	14. "<u>Pollen</u> is a male plant structure that often gets carried to another plant, or another part of the same plant."
	15. "<u>Fertilization</u> is an union of sperm and egg cells."
	16. "An <u>egg</u> is a female cell which is produced inside a female organ. A <u>sperm</u> is a male cell which is produced inside a male organ."
	17. "In a typical flower this is how fertilization happens. The wind, an insect or sometimes people will carry the pollen from the anther"
	18. "to the <u>pistil</u> of the flower especially to the <u>stigma</u> that has a sticky top. Some of the pollen will get to the <u>ovary</u> and fertilize one female egg cell in the flower."
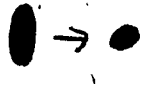
	19 "Then the cell develops into a <u>seed</u>, a new life. A seed is a protective shell for an embryo with food and protective cover."
	20 "An <u>embryo</u> is an early stage of development from fertilized egg. It is an offspring before birth."
	"Seeds come in various sizes."
	22 " The diagram shows the seed of a coconut and the seed of a poppy".
	23 " A tomato is nothing else but an <u>ovary</u> with ovules and seeds."
	24 " If you cut an apple across a star with five pointed <u>ovules</u> of the ovary and the seed.
over 3000 years	25 " Some seeds could be preserved over a thousand years. A seed from a pyramid sprouted after over three thousand years."
	26 "And does the life in the world of plants goes on."
The End	27 "The End."

APPENDIX G

Completed Scriptforms

Unit II

REPRODUCTION MAMMALS NAME: BONNIE GRADE V ROOM 15 SEX F HAMPSTEAD 1982	**1** # REPRODUCTION - ANIMALS — MAMMALS DIALOGUE
	2 These eggs are almost ready to hatch. They lie among rocks and gravel at the bottom of a stream. The dark spots are the eyes of baby trout to be born.
	3 How does a pea-sized trout egg grow into a baby trout? How does any egg become a baby animal?
FERTILIZED EGG	**4** An egg cannot grow into an animal by itself. First the egg must be fertilized.
SPERM EGG	**5** It must be joined by the father's sperm. Fertilization means the union of sperm and egg cells.
OFFSPRING MOTHER FROG TADPOLE	**6** Young copies of mature organisms are called OFFSPRINGS. First the babies are to weak to be on their own. They have to be looked after. The parents feed their babies and provide care
CATS DOGS	**7** One kind of living organism is call SPECIES. Cats for example are species, so are dogs.
	8 A group of several species that are similar in a way are called GENUS. For example chickens are species that belong to the genus of birds.
CONTINUE	**9** Producing copies of a living organism is known as REPRODUCTION. This ensures continuation of the species
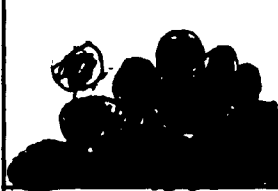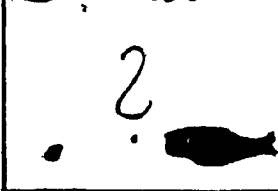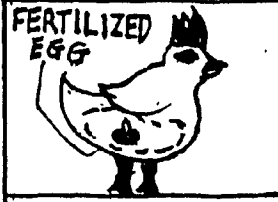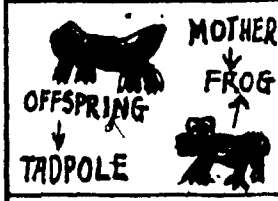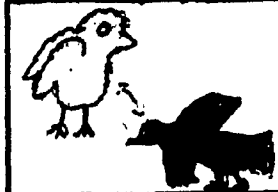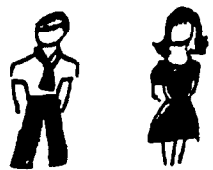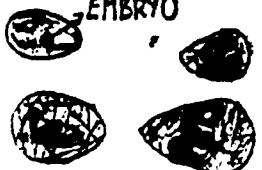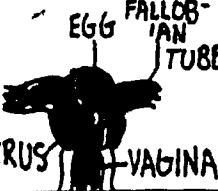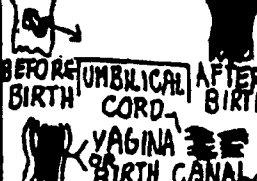
NAME _____

	10	Whenever an egg cell joins a sperm cell resulting in fertilization, we call it ∧ SEXUAL REPRODUCTION
	11	A male and a female is needed for sexual reproduction.
	12	A male rooster and a female hen is needed to produce baby chicks.
FERTILIZED	13	The eggs of a chicken are fertilized in the hen's body. Not all eggs are fertilized. For the egg to be fertilized a rooster must mate with the hen.
EMBRYO	14	After the eggs have been fertilized changes will start and the chick will start to form.
EGG YOLK-FAT EGG WHITE-PROTEIN	15	The EGG YOLK provides food containing fat for the chick The EGG WHITE contains food with protein.
13 hours later... 56 hours later PUMP BUND	16	At 13 hours after the egg is laid, the cells in the egg have divided many times. After 56 hours, the hear will already plump.
EMBRYO	17	Before birth, the chick or any other organism is called an EMBRYO. An EMBRYO is an offspring or a young copy of organism before birth.
	18	MAMMALS are genus with milk producing glands, bearing their youngs alive. One species within mammal are humans.

UTERUS OR WOMB	19	WHEN THE EGG IS FERTILIZED, MOST EMBRYOS OF MAMMALS DEVELOPE IN THE WOMB OR UTERUS of the mother.
EGG **FALLOB- IAN TUBE** **UTERUS** **VAGINA**	20	This is a diagram (picture) of the FEMALE REPRODUCTIVE ORGANS. It consists of the UTERUS, the OVARY, the FALLOPIAN TUBE and the VAGINA.
FALLOBIAN TUBE **UTERUS**	21	The OVARY releases the egg cell in mammals. The fertilized egg travels through FALLOPIAN TUBE and gets attached to the wall of the UTERUS
SEMEN **ZYGOTE**	22	The fertilizing fluid containing the male cell is called SEMEN. When the egg is fertilized a membrane or covering layer protects other sperms from entering the egg. This is called ZYGOTE
MENSTRUATION	23	Eggcells mature in 28 days in human females. The unfertilized eggs leave the woman's body each 28 days. This is called MENSTRUATION. The mature egg cells are called: OVUM
PICTURE OF MAMMAL EMBRYO	24	The mammal embryo develops in a BIRTH SAC that acts as a shock absorber to protect the FETUS (mammal embryo) The UMBILICAL CORD connects the embryo with the PLACENTA that contains veins supplying the embryo with nourishment.
BEFORE BIRTH **UMBILICAL CORD** **AFTER BIRTH** **VAGINA or BIRTH CANAL**	25	The PLACENTA leaves the mother's body after birth. When developed, the embryo leaves through the VAGINA or BIRTH CANAL that stretches. The UMBILICAL CORD will have to be cut. The belly buttons or navels mark the spot where the cord was attached to the baby. Animals bite off the cord. Most embryos develop in the mother's body.
	26	One exception is the seahorse. The eggs are fertilized in a pouch on the father's belly. When he is ready to give birth, he coils his tail around seaweed and he bends backward and forward to squeeze the babies out — as many as 200.
THE END	27	These are some of the wonders of animal reproduction. The End

APPENDIX H

Self-instructional Unit - Sample

For Teachers

PRESENTATION ——————— PAGE 1

SCRIPT FORM (SLIDE-TAPE OR FILMSTRIPS)

1 DIALOGUE (MUSIC)

MY OWN SLIDE-TAPE & FILMSTRIP SHOW

VISUAL
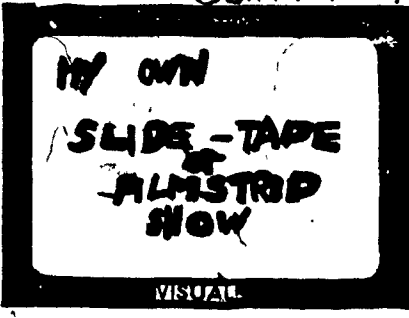
This Script form aims to outline the steps to follow in training your students to produce their own education slide- or filmstrip presentations.

PRESENTATION ——————— PAGE

2 DIALOGUE

BY MARITZA BERGER

VISUAL

MUSIC — HAPPY, VIVID

PRESENTATION ——————— PAGE

3 DIALOGUE

PART I THE STORYBOARD

VISUAL
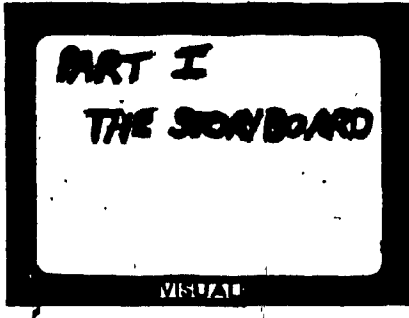
CONTENT

One of the best ways to start a media presentation is to design a STORYBOARD.

A STORYBOARD could be the starting point for any media show: slides, filmstrips, films, VTR, simulation games skits, plays, etc.

PRESENTATION ——————— PAGE

4 DIALOGUE

VISUAL

OVERVIEW

A storyboard is a story in pictures.
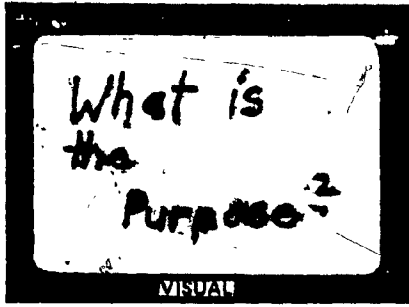
5 DIALOGUE

The purpose of a storyboard for a media production is the same as the purpose of an outline for a composition: it helps you to organize your information

VISUAL

OVERVIEW

---

6 DIALOGUE

A rectangular sheet of paper of convenient size (21 × 28 cm - the size of this script form) could be used horizontally.

A vertical division by folding the paper or making a line would be helpful.

THE FORM of A STORYBOARD

VISUAL

OVERVIEW

---
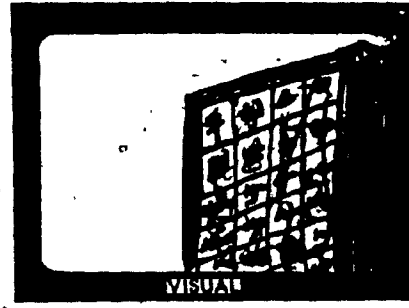
7 DIALOGUE

The left side of the sheet should be divided into rectangles appr. 12 - 20.

Each rectangle will contain a visual message.

VISUAL

OVERVIEW

---
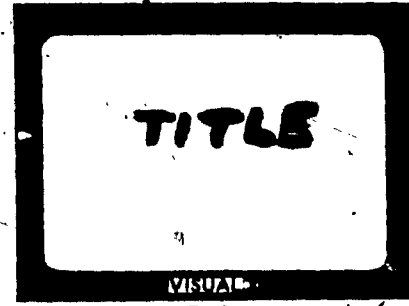
8 DIALOGUE

In the first frames (rectangles) they should place their TITLES

TITLE

VISUAL

OVERVIEW

SCRIPT FORM (SLIDE-TAPE & FILMSTRIPS)

9 DIALOGUE

by RANDY GOLDBERG (GRADE **VI**)

VISUAL
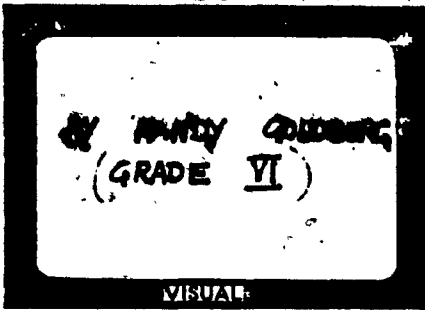
EXAMPLES

NAME (and GRADE or Age if they are students, or course number if they are taking a course)

---

10 DIALOGUE

HAMPSTEAD SCHOOL (MONTREAL)
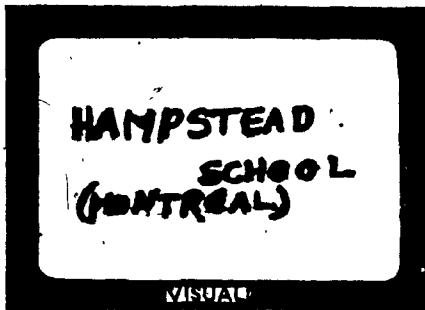
VISUAL

EXAMPLES

the NAME of their SCHOOL with its location

---

11 DIALOGUE

A CLASSROOM PRESENTATION MCMLXXXI
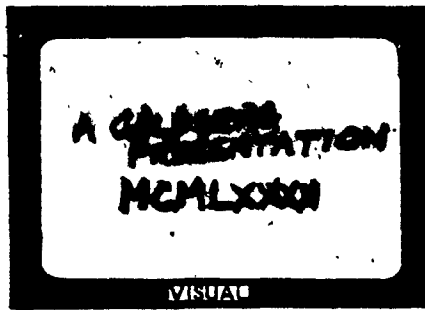
VISUAL

EXAMPLES

and the YEAR of PRODUCTION

---
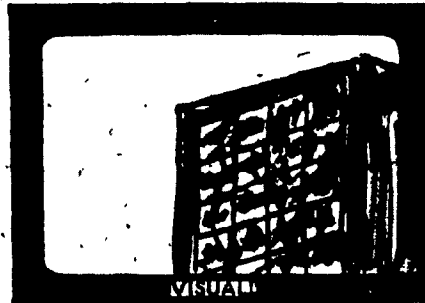
12 DIALOGUE

VISUAL

now they are ready to sketch their first VISUALS (pictures)

PRESENTATION · _____ - PAGE +
'SCRIPT - FORM   (SLIDE - TAPE or. FILMSTRIPS)

| 13 | DIALOGUE

On the fifth frame they will
make a rough sketch of their
first scene.

CONTENT

PRESENTATION _____ PAGE ____

| 14 | DIALOGUE

They continue with their scenes
in chronological order.

EXAMPLES

PRESENTATION _____ PAGE ____
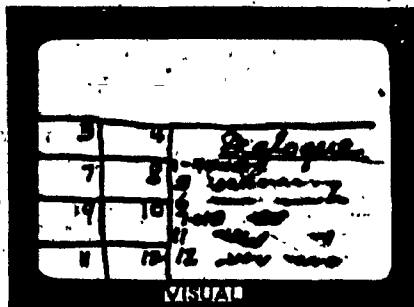
| 15 | DIALOGUE

While the left side of their
storyboard contains their VISUALS
(pictures) the right side will be
their DIALOGUE.

EXAMPLES

PRESENTATION _____ PAGE ____
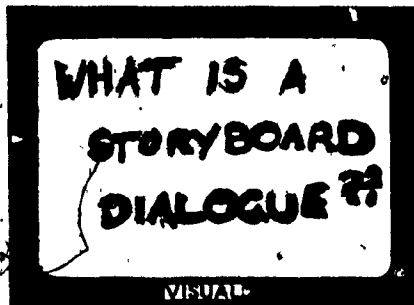
| 16 | DIALOGUE

The DIALOGUE of the storyboard
will contain the verbal messages,
sound, - sound effects and music
(OPTIONAL)

OVERVIEW

SCRIPT FORM (SLIDE TAPE & FILMSTRIPS)

PRESENTATION | PAGE 5

THE CONTENT
of
A STORYBOARD

VISUAL

CONTENT
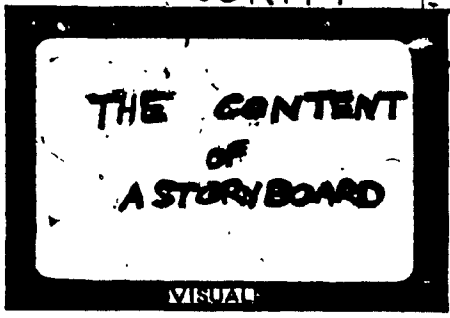
17 DIALOGUE

The next 5 frames contain DIRECTIONS for your pup

A.) Before you have started your story-board you have a "STORY" or Information Package in mind.

B.) Your story or information have to be broken up into sentences or phrases that will become your VERBAL part of your storyboard called: DIALOGUE

C.) see Frame 20

PRESENTATION | PAGE

HOW TO WRITE
A
GOOD DIALOGUE
FOR A STORYBOARD

VISUAL
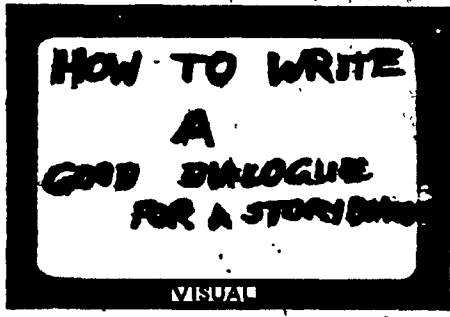
CONTENT   HOLD SLIDE

18 DIALOGUE

D) Your dialogue should be numbered and should correspond to your VISUALS

E) Your dialogues for one frame should not be too long (NOT MORE THAN 2-3 SENTENCES)

PRESENTATION | PAGE

SAME AS #18 ↑

VISUAL
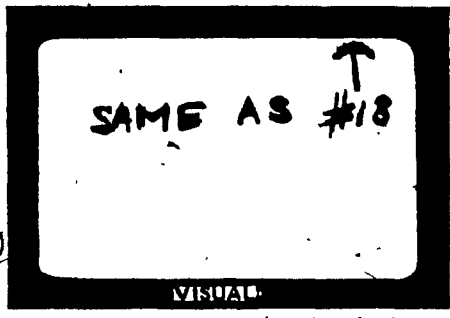
HOLD SLIDE
↓

19 DIALOGUE

F) You don't need a dialogue for every frame.

G) You may "fill-in" some frames with (music) sound effects or even silence, especially in the beginning and in the end.

PRESENTATION | PAGE

SAME AS #19 ↑

VISUAL
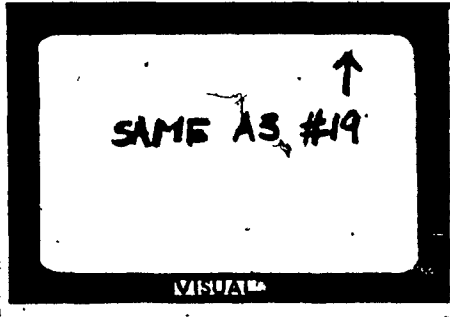
20 DIALOGUE

G) make sure your dialogue is clear to the point and without mistakes.

C) You may write a draft copy on a paper first and edit it before transferring it to your SCRIPT FORM.

See frame 17.

PRESENTATION PAGE 6

SCRIPT FORM (SLIDE - TAPE or FILMSTRIPS)
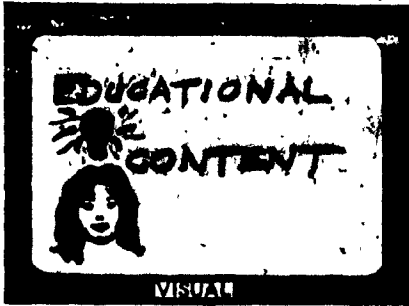
21 DIALOGUE

I) Since producing your script form is done in school as part of your learning activities, the storyboard should have an EDUCATIONAL MESSAGE

(This is very easy, since your pupils could design a storyboard on a topic related to any school subject.)

CONTENT

PRESENTATION PAGE

22 DIALOGUE

For example they may produce a SCRIPT FORM on PETS and they may discuss "walking a dog"

or they may discuss "HOW TO BE A GOOD SPORT"

CONTENT

PRESENTATION PAGE

145)3045
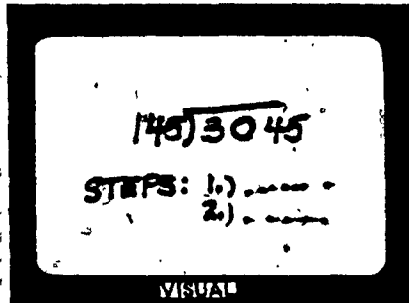
STEPS: 1.) _____
2.) _____

23 DIALOGUE

Or they may explain the steps in a long division.

After their first topic they will find it difficult to choose from the hundreds of possible topics.

EXAMPLES

PRESENTATION PAGE
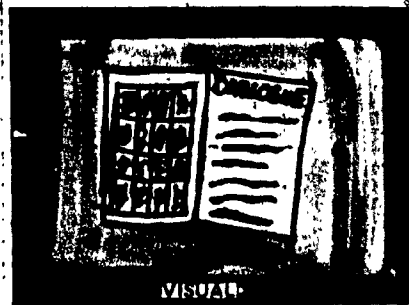
24 DIALOGUE

TO SUMMARIZE:
A storyboard is a "story" in pictures

A storyboard consists of TWO BASIC PARTS:
1.) THE VISUAL PART (PICTURES)
2.) THE DIALOGUE (VERBAL INFOR
MATION & SOUND
or
THE AUDIO PART

CONTENT

93.

PRESENTATION   SCRIPT FORM   PAGE 7
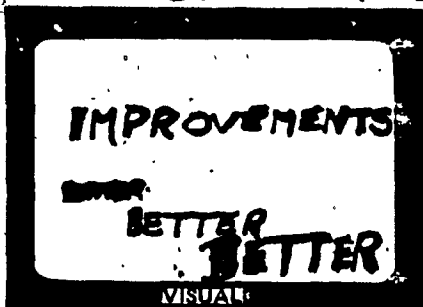
25 DIALOGUE

Edit and revise the storyboards of your pupils.

A conference or discussion with them and their agreement is VERY IMPORTANT to avoid disappointment and loss of interest.

HOLD SLIDE
CONTENTS

PRESENTATION   PAGE

26 DIALOGUE

SAME AS ↑ #25
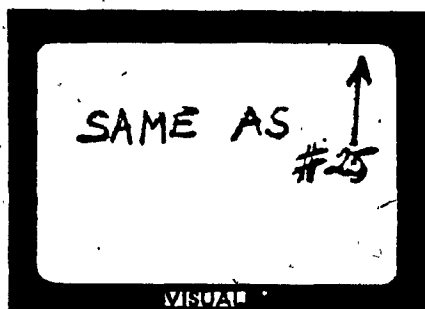
After authoring the final version, provide blank forms for your students to transfer their storyboard to a SCRIPT FORM such as this.

Ask your students to improve neatness, clarity and language as well as the pictures on the storyboard

---

PRESENTATION   PAGE

27 DIALOGUE

Coloring the pictures would improve the storyboard and would make it more enjoyable for most pupils.

EXAMPLES

PRESENTATION   PAGE

28 DIALOGUE

For some topics, black and white is just as acceptable.

This could also be a question of personal preference

It is advisable to let your pupils decide certain details

EXAMPLES

PRESENTATION — SCRIPT FORM   **PAGE**   ᴇⱽ
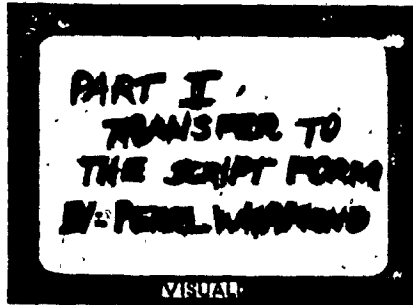
CONTENT

DIALOGUE   29

Now that your students have completed their storyboard, you are ready to train them to transfer that storyboard into the SCRIPT FORM

PRESENTATION   **PAGE**
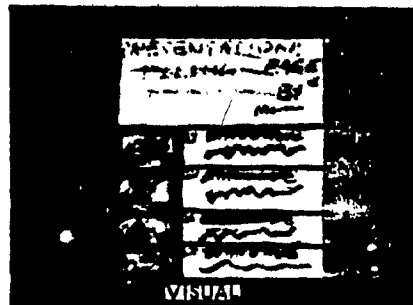
CONTENTS

DIALOGUE   30

YOU ARE LOOKING AT A SCRIPT FORM.

A SCRIPT FORM CONSISTS OF:
   1.) frames for VISUAL
   2.) space provided for the AUDIO
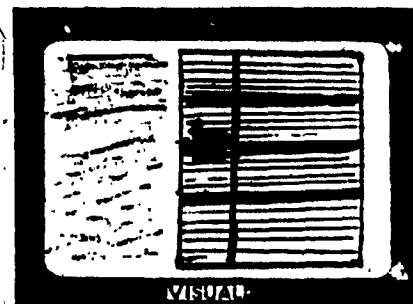   (your dialogue)

PRESENTATION   **PAGE**

EXAMPLE

DIALOGUE   31

It may be a good idea to ask your students to prepare a draft script form. They could use a lined paper (full-scap) with a margin appr. 3 cm wide.

PRESENTATION   **PAGE**

EXAMPLE

DIALOGUE   32

Horizontal lines on every sixth line could provide divisions for the frames and the dialogue.

The margin will form, with the horizontal divisions, the VISUAL frames

SCRIPT FORM

33 | DIALOGUE

Students can first transfer their story-board to the 'draft script-forms' prepared as outlined before.

VISUAL

CONTENT

34 | DIALOGUE

Before the final transfer, read the dialogue with your pupils and see that they correspond with the visuals

Ask them for ideas for improvement and suggest yours for their approval

VISUAL

CONTENT

35 | DIALOGUE

Ask pupils to prepare final script-forms. (Already provided)
Check and approve final forms

VISUAL

FOLLOW
THROUGH

36 | DIALOGUE

Can you recall the two basic elements of a Storyboard?

VISUAL

FEEDBACK   PRACTICE

SCRIPT FORM
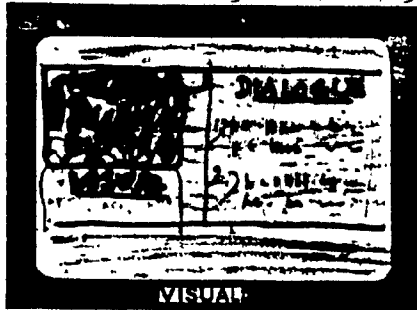
37 | DIALOGUE

If your answer was

1.) VISUALS (pictures) and
2.) DIALOGUE or AUDIO (verbal information & sound)

you are absolutely RIGHT!

FEEDBACK
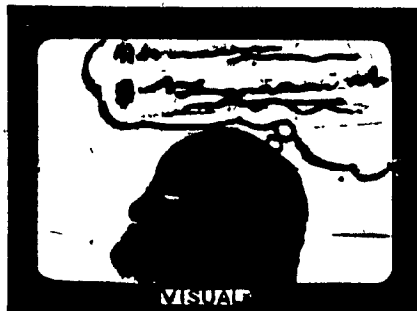
38 | DIALOGUE

Now try to recollect the steps for creating & transferring a Storyboard into a Script Form. Compare your answers with the steps listed on the sheet in your MANUAL titled: STEPS TO FOLLOW IN PRODUCING SCRIPT FORM.

FOLLOW THROUGH

39 | DIALOGUE

You are now ready to write your own SCRIPT FORM keeping in mind the level of your students.

ENRICHMENT

40 | DIALOGUE

The best test for your Script Form will be the successfulness of the Script Forms produced by your students.

FOLLOW THROUGH

SCRIPT FORM

FOLLOW THROUGH

41 DIALOGUE

First, ask your students to read your Script Form.

After reading your Script Form, your students should choose a topic.

If they find this difficult, question them about their interests and advise them to help to decide

FOLLOW THROUGH

42 DIALOGUE

Your students, just like you, should first produce a story-board.

To avoid disappointment ask them to show you their first five-six scenes with special attention on first introducing form and VISUALS (Pictures)

ENRICHMENT

43 DIALOGUE

Make sure that you check and discuss the "MESSAGE" (educational content) of the storyboards before your students complete their storyboards
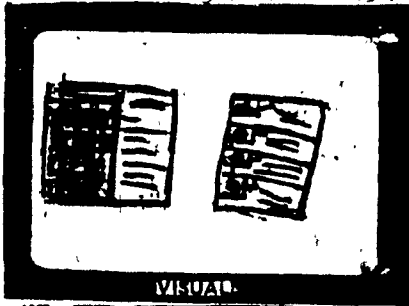
ENRICHMENT

44 DIALOGUE

Check and ask for changes (or revise yourself) with your students - or approve storyboards. You may mark them.

PRESENTATION   **PAGE** 12
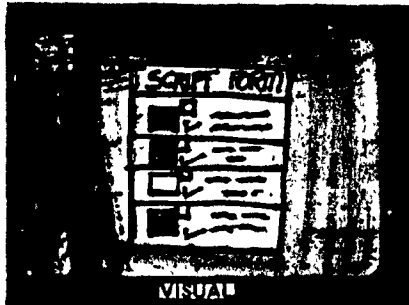
SCRIPT FORM

| 45 | **DIALOGUE** |

Ask students to transfer their story-
board into DIALOGUE - To review steps
see Frames and Dialogues No 17-21.

After the dialogue have been completed
ask them to complete their VISUAL
and DIALOGUES on the draft script
FORM. See Frames. 31-34 again

FOLLOW THROUGH

VISUAL

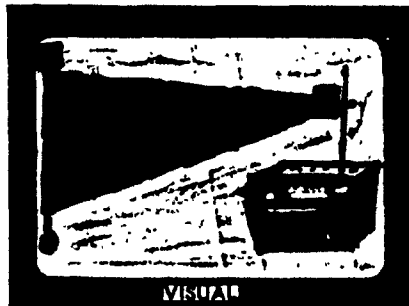**PRESENTATION**   **PAGE**

| 46 | **DIALOGUE** |

SCRIPT FORM

Check and review students combined
information on draft SCRIPT
Ask them to do final SCRIPT
FORM on provided sheets identical
to this one.

VISUAL

FOLLOW THROUGH

PRESENTATION   **PAGE**

| 47 | **DIALOGUE** |

Produce overhead transparencies
of the final SCRIPT-FORM
for group discussions, evaluation
and revisions as well as for
FOLLOW-UP activities for group

VISUAL

ENRICHMENT

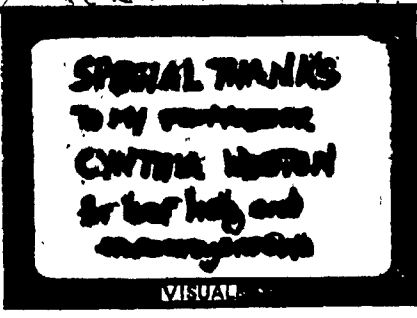---

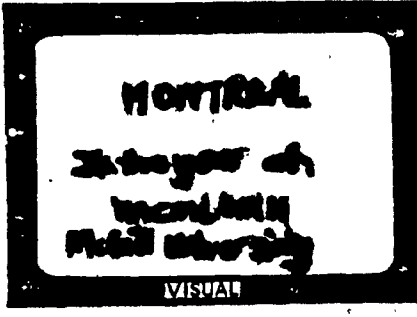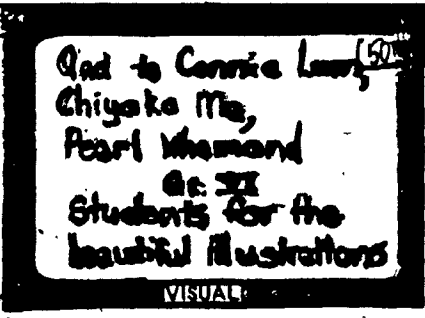**PRESENTATION**   **PAGE**

| 48 | **DIALOGUE** |

CONGRATULATIONS!
Now your students are ready
to transfer their presentations
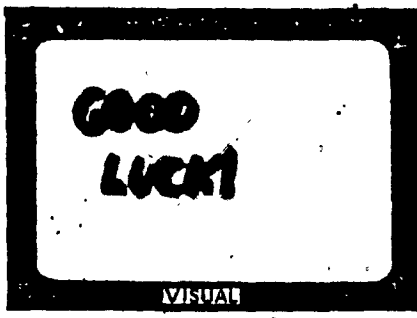into a filmscript, slide tape
show or into other forms of media
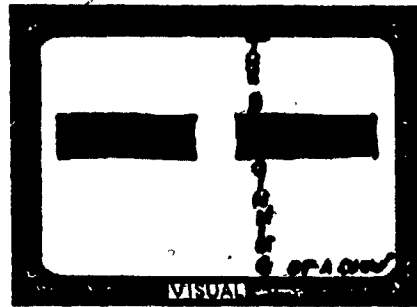
To proceed see PART III:
SLIDE PRODUCTION

VISUAL

SCRIPT FORM

49 DIALOGUE

MUSIC →

51 DIALOGUE

Music cont'd

52 DIALOGUE

Music expressing joy, completion, (victory) success

53 DIALOGUE

Music cont'd to the End.

p. 14

STEPS TO FOLLOW IN PRODUCING A SCRIPT-FORM:

PART I: STORYBOARD

1) Choose a topic* (or use assigned topic)* Get approval of topic.
2) Write your outline first, then your "story."
3) Break up your story into scenes (frames) and number them in chronological order (draft copy).
4) Write a verbal message for most of your scenes (frames)—number them on your draft copy.
5) Make sure you have a "message" (educational content).
6) Read your verbal message (dialogue) with your pictures (visuals) to see that they correspond.
7) Do storyboard - color pictures, work neatly.
8) Start with: TITLE, Your Name and Level, Name OF SCHOOL (TEACHER) DATE.
9) Continue with scenes and dialogue.
10) Complete your storyboard.
11) Edit your storyboard and get approval from teacher. Revise if necessary.

PART II: TRANSFER TO SCRIPT-FORM

12) Transfer visuals and audio into draft script.
13) Get approval - revise if necessary.
14) Do final script form.
15) After approval transfer to overhead transparencies for evaluation.

End