A COMPARISON OF A MASSED AND A SPACED FILM PRESENTATION AS STIMULI FOR CREATIVE WRITING OF FOURTH AND FIFTH GRADERS

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A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Elementary and
Special Education

1978

ABSTRACT

A COMPARISON OF A MASSED AND A SPACED FILM PRESENTATION AS STIMULI FOR CREATIVE WRITING OF FOURTH AND FIFTH GRADERS

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Research on the use of films in education has diminished since its Golden Age, the years during and immediately following World War II. The decline has been occurring, unfortunately, during the decades when motion pictures and television have become increasingly influential in the society.

For this study an animated, silent motion picture was designed to be used in two methods of presentation as stimulation for the original writing of fourth and fifth grade children. The film was open-ended; the story built to a climax and then stopped. In film version A, the Spaced presentation, four stopping points of eight seconds each were used to interrupt the viewing and engage the students in a questioning-listening-thinking activity based upon the film's developing story. In version B, the Massed presentation, no stops were included; the same questioning-listening-thinking activity occurred after the film viewing. It was hypothesized that if student-teacher

interaction occurred within the viewing, the resulting stimulus for creative writing would be greater than if the same interaction occurred after the viewing.

The population for the study included four classrooms of fourth graders and four classrooms of fifth graders, a total of 171 children, in a suburban metropolitan school district. Classrooms were randomly assigned to the two treatment modes. The experimenter introduced the film, presented the questions at the designated points, and asked the children to write interesting endings for the unfinished film. The writings of both student groups were mixed together and presented as one set of papers to two trained raters for evaluation using a holistic-general impression marking instrument. Correlation of rater response was .80. Rater evaluations for the two modes of presentation were rank-ordered from 1 to 171 and analyzed by the Mann-Whitney test for two independent samples. Significant difference was found between the Massed and the Spaced presentations ($\leq .01$) in favor of the Massed viewing; that is, children who were asked all questions after viewing the film wrote papers that received higher average scores than children who were asked the same questions at intervals within the viewing sequence. This result is contrary to the main hypothesis proposed in the design of the study.

The following research questions were also examined: (1) correlations between the student writings

and the students' reading scores on the Michigan Educational Assessment Program; (2) differences in the quality of writing of boys and girls. A correlation was found between the students' writing and their reading ability as measured by the Michigan Educational Assessment Program reading examination ($\leq .001$). Differences by sex were significant within the Spaced presentation, in favor of girls ($\leq .05$). No differences in the writings by sex were found in the following: between total groups for versions A and B; within the Massed presentation; in the top quartiles of both the Massed and Spaced presentations; and in the bottom quartiles of both the Massed and Spaced presentations.

The results of this study indicate that film can be used effectively in writing lessons when combined with student-teacher interaction. Further research is needed to determine the most effective modes of presentation for instructional films. A modification of the design of this study, incorporating open discussion rather than closed questioning, would be feasible if a large number of classrooms were available.

Dedicated to the Beagle--
whose integrity, sense of humor,
and sparkling personality
give perspective and balance
when needed.

ACKNOWLEDGMENTS

Professional guidance, moral support, subtle prodding, and encouragement were freely and graciously given to this student by his advisor, dissertation director, and doctoral committee chairperson, Sheila M. Fitzgerald. Words cannot express . . . . . .

My appreciation is extended to Bruce Miles, cognate advisor. His criticisms--always constructive--helped to bring the study in focus; I am grateful to William Joyce, the third member of the doctoral committee, for his insightful observations and practical suggestions; and I would like to thank Don Wilkening, the fourth member of the committee, for his interest and cooperation throughout my four years at Michigan State University.

Assistance on statistical matters, offered by Patricia Busk and Joe Byers of the College of Education, is appreciated. And special thanks to Steve Gitterman of the Office of Research Consultation for his relentless quest of the perfect experimental design.

I am beholden to Jan Mitzner and Connie Meyerle, invaluable evaluators of the children's writing.

My Canadian friends in Winnipeg were most obliging. Barbara Angel of the National Film Board provided a

refreshing outlook on film in education, and Earl Enns and Denis Hlynka made perceptive observations on the experimental design during two enlightening summers at the University of Manitoba.

John Phelps' persistent questionings, although anxiety-provoking, further clarified the issues of the study. His queries are acknowledged and I'm glad they're over.

Linda Gebhard, typist, was neat, precise, and correct; her alacrity is commendable.

Brief (but indispensable) assistance was selflessly offered by Rafael Fernandez; he is an exemplary auxiliary animator. Te lo agradezco, amigo.

Thanks are extended to my niece, Stephanie Fernandez, for lending me the gorilla.

Lastly, I am indebted to Joe Kuszai and his Design Center, a prism that helped me see.

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CHAPTER I

STATEMENT OF THE PROBLEM

The Golden Age of educational film research included the years during and immediately following World War II (Allen[1]). Today, however, researchers are interested in other areas of educational technology, such as instructional television, programmed instruction, and computer assisted instruction (Hoban[2]). This is unfortunate because the educational potential in film has not diminished; in fact, the potential, as will be shown below, is greater today than in the past.

Snider[3] claims that television is an electronic extension of film. Chu and Schramm[4] corroborate Snider's position by drawing conclusions on the effectiveness of instructional television from previous studies on educational film (e.g., Michael and Maccoby,[5] Ash and Jaspen,[6] McGrane and Baron[7]). If television stimuli is considered equivalent to film stimuli, then the following findings are pertinent to the present study. Culkin[8] discovered that by age 16 the average student has been exposed to 11,000 hours of schooling and 15,000 hours of television. In addition, the 1977 Gallup Poll of the Public's Attitudes

Toward Schools[9] showed parents' estimate of television viewing during a typical school day to be considerable (refer to Table 1.1 below).

Table 1.1.--Gallup Poll Parent Estimate of Children's Television Viewing.

	Age	
	Twelve-year-olds and below	Thirteen-year-olds and above
Television	2 hours	2 hours
Homework	45 minutes	1 hour
Reading	30 minutes	30 minutes

Johnson,[10] in addition, declares that students see twenty motion pictures for every single book they read. Children today, therefore, are exposed to a considerable amount of film stimuli, through the television medium and motion pictures. This exposure educates the child to interpret film messages at an early age. Phillips affirms that

> Children today are already adept at interpreting visual messages presented in a sequence of pictures. Through the use of films, we can increase their ability to receive and evaluate visual messages and help them transfer these skills to verbal modes of communication.[11]

And Smith describes the potential of film stimuli to education by stating the following:

> It has been said that the whole curriculum could simply be youngster's responses to the television programs and movies they see or could see every day.[12]

Finally, the use of film in the teaching of English is considered important by the Ontario Institute for Studies in Education:

> . . . film seems to be the most rewarding, the most popular, and consequently the most frequently used medium of those mass media currently being integrated into the teaching of English. . . .[13]

One specific use of film in the English curriculum is as a stimulus for creative writing. Studies on film that incorporate writing have been conducted by several researchers. Huntington,[14] for example, used a film without words as a stimulus for creative writing with three different post stimulus variables: delay in writing after viewing, reviewing the film content after viewing, and seeing the film a second time. He measured the syntactic complexity of sixth grade students' writings after the three stimuli were presented and found no difference among the three varibles. Uehara[15] investigated the effects of three different stimuli on third and fifth grade writing: a set of pictures, a recording of environmental sounds, and a film without words. No difference was found among the three presentations. And, Ewing[16] compared the effects of four stimuli on children's writing: (1) the children were asked to write a short story; (2) the children listened to a musical selection; (3) the children viewed a silent film; and, (4) children drew a picture before writing. The highest quality writing was produced by the

children who received minimal stimuli (that is, children who were simply asked to write a story).

A more specific use of film as a stimulus for creative writing includes student participation during the film viewing. There is no indication, however, that this particular design has been created. The review of the experiments that follow depict studies that include student participation with film for purposes of factual learning, not as stimuli for creative writing. Hovland, Lumsdaine, and Sheffield[17] found that participation by the audience while viewing a film increases learning. And Travers[18] determined that student participation during the viewing was effective to learning factual information; the participation would be equally effective covertly as overtly.

Finally, it is possible to have the teacher as well as the students participate during the viewing. Again, there are no experimental designs as yet that use a film as stimulus for creative writing by incorporating student-teacher interaction. Snider,[19] however, reviewed the writings of research on instructional film and found that researchers infer that the most effective methods for using film in the classroom result from its use by a teacher who follows the principles of good instruction.

This study combines film, student participation, teacher participation, and creative writing. The student and teacher participation occurs through the interaction

of the teacher with students through questioning strategies. The study focuses on film and on three of the five basic skills of the language arts: listening, viewing, and writing.

The philosophy that underscores the study is summarized by James Moffett:

> Wholeness is the key. The great principle of nature is unity--the harmony of many things in oneness, of parts within wholes. . . . In our own age of increasing fragmentation it takes a special effort to offset disintegration and compartmentalization. So it is critical to integrate language schooling in every possible way--the learner, the learning, and what is to be learned.[20]

Purpose

The purpose of this study is to compare two methods of using a motion picture that has been designed to stimulate creative writing of fourth and fifth grade students. The study compares two questioning strategies using two versions of the same silent motion picture. In film version A (the Spaced presentation), a questioning strategy occurs within short interruptions during the viewing of the film; in film version B (the Massed presentation), the questioning strategy occurs after the viewing.

The film is open-ended; the story builds to a climax and then stops (i.e., there is no conclusion). Experimental subjects furnish an ending to the story by writing. The writing is evaluated by means of a holistic-general impression marking instrument and the writing

scores are used as the measure of effectiveness of each questioning strategy.

Hypotheses

The experiment investigates (A) the main hypothesis; (B) differences in writing quality by sex; and, (C) correlations between quality of writing and scores on the Michigan Educational Assessment Program Reading Examination.

The Main Hypothesis

Stated in null form, the main hypothesis appears as:

H_o: There is no difference between mean scores on the holistic measure of writing following the Spaced presentation and the mean scores on the holistic measure of writing following the Massed presentation.

H_1: There is a difference between mean scores on the holistic measure of writing following the Spaced presentation and the mean scores on the holistic measure of writing following the Massed presentation.

The hypothesis can be expressed symbolically as

H_o: $E(X) = E(Y)$

H_1: $E(X) \neq E(Y)$

Differences in Writing by Sex

1. Is there a difference in the holistic scores of males versus females?

   Stated in null hypothesis form:

   H_o: There is no difference between the holistic scores of male subjects and female subjects

H_1: There is a difference between the holistic scores of male subjects and female subjects

2. Is there a difference in the holistic scores of the Massed presentation: males versus females?

   Stated in null hypothesis form:

   H_o: There is no difference between the holistic scores of male subjects and female subjects in the Massed presentation

   H_1: There is a difference between the holistic scores of male subjects and female subjects in the Massed presentation

3. Is there a difference in the holistic scores of the Spaced presentation: males versus females?

   Stated in null hypothesis form:

   H_o: There is no difference between the holistic scores of male subjects and female subjects in the Spaced presentation

   H_1: There is a difference between the holistic scores of male subjects and female subjects in the Spaced presentation

4. Is there a difference in the top quartile holistic scores between males and females in the Massed presentation?

   Stated in null hypothesis form:

   H_o: There is no difference between the top quartile holistic scores of male subjects and female subjects in the Massed presentation

   H_1: There is a difference between the top quartile holistic scores of male subjects and female subjects in the Massed presentation

5. Is there a difference in the top quartile holistic scores between males and females in the Spaced presentation?

Stated in null hypothesis form:

H_o: There is no difference between the top quartile holistic scores of male subjects and female subjects in the Spaced presentation

H_1: There is a difference between the top quartile holistic scores of male subjects and female subjects in the Spaced presentation

6. Is there a difference in the bottom quartile holistic scores between males and females in the Massed presentation?

   Stated in null hypothesis form:

   H_o: There is no difference between the bottom quartile holistic scores of male subjects and female subjects in the Massed presentation

   H_1: There is a difference between the bottom quartile holistic scores of male subjects and female subjects in the Massed presentation

7. Is there a difference in the bottom quartile holistic scores between males and females in the Spaced presentation?

   Stated in null hypothesis form:

   H_o: There is no difference between the bottom quartile holistic scores of male subjects and female subjects in the Spaced presentation

   H_1: There is a difference between the bottom quartile holistic scores of male subjects and female subjects in the Spaced presentation

Correlations between Reading and Writing

1. Is there a correlation between the Michigan Educational Assessment Program reading scores and the holistic scores?

2. Is there a correlation between the Michigan Educational Assessment Program reading scores and the holistic scores of students in the Spaced presentation?

3. Is there a correlation between the Michigan Educational Assessment Program reading scores and the holistic scores of students in the Massed presentation?

Experimental Procedures

The researcher will involve students in a listening, viewing, and writing activity by means of different presentations of the same silent motion picture. Both film versions, A and B, are open-ended; the story builds to a climax and then stops. Film version A, the Spaced presentation, has four stopping points. At each point the researcher stops the projector and engages the experimental subjects in a questioning strategy. After the last question is asked, the students are requested to furnish an ending to the story by writing.

Film version B, the Massed presentation, does not have stopping points. The film is shown en toto; after the viewing the children are asked the same questions that were asked during the development of the Spaced presentation, film version A. After the questioning, the students that participated in film version B are requested to furnish an ending to the story by writing.

The children's writing from both the Massed and Spaced viewing groups will be evaluated by two professional raters using a holistic-general impression marking instrument. The scores of the writings will be analyzed statistically to determine if there is a difference between the two sets of papers. It is hypothesized that

stopping the film and conducting the questioning strategy as the story develops will be a more effective stimulus to creative writing than conducting the questioning strategy after the viewing. The measure of which stimulus is superior will be the quality of the student writing.

Limitations of the Study

The film used in this experimental study was designed and created specifically for the study. Generalizations of the results can only be made to this particular film.

Equality of the two experimental groups was determined by random assignment of classrooms. Extraneous factors that may have affected the outcomes were considered and, when possible, controlled:

Controlled: room illumination, the researcher's verbal presentation to students, the hour of day for conducting the experiment, the seating arrangements for viewing the film, and the commonality of writing instruments.

Considered: classroom teacher's experience (i.e., number of years teaching), classroom structure (highly structured versus open), amount of writing performed by the students per week, amount of film viewing per week, comments made by students during the film viewing and comments made by students during the writing activity.

Significance of the Study

Conclusions from the experiment, combined with pertinent information gleaned from other research, will

lead educators to consider film: (1) as a useful tool in instruction; (2) as an effective instrument to teach the language arts; and, (3) in one specific design, as an effective stimulus for children's writing. The practical results from the experiment will show pre-service and in-service teachers how they may effectively use film as a stimulus for creative writing.

The design of the study may generate other investigations on the effectiveness of film in the classroom, and it may offer useful guidelines to producers of commercial films. Lastly, the study will demonstrate that in today's society classroom instruction by the teacher shares a symbiotic relationship with film. This conclusion will influence the practical daily activities of teachers as well as the conceptual and theoretical endeavors of educational researchers.

Definitions

The chapters that follow contain words from the area of media and the language arts. Some words arise from technological concerns, while others have meaning specific to this study. In order to clarify the meaning of some of these words the following definitions are given:

Writing; creative writing: in this study all aspects of writing will be considered "creative" (i.e., original). Writing is defined as the process of transferring original thoughts/language to print.

Holistic evaluation: a method of evaluating writing that uses the rater's general impression of the whole piece, rather than specific features such as spelling, punctuation, penmanship, etc.

Language arts: the term that encompasses the traditional features of Language known as Reading, Writing, Speaking, and Listening, as well as Viewing, all interrelated with Thinking.

Viewing: a new component of the language arts. Viewing encompasses the effective use of vision in the process of communication.

Audiovisual materials: a collective noun (not the name of a field), referring to a collection of materials and devices which are displayed by visual projection and/or sound reproduction.*

Educational technology: a complex, integrated process involving people, procedures, ideas, devices and organization, for analyzing problems, and devising, implementing, evaluating and managing solutions to those problems, involved in all aspects of human learning.*

Educational media: the media born of the communications revolution which can be used for instructional purposes alongside the teacher, textbook, and blackboard.*

Media: all of the forms and channels used in the transmittal of information process.*

Motion picture: a length of film, with or without magnetic or optical sound track, bearing a sequence of images which create the illusion of movement when projected in rapid succession.*

Film: a term synonymous with motion picture.*

Educational/Instructional film: motion pictures used by educators, with specific objectives in mind, to enhance learning.

Massed viewing presentation: the showing of a motion picture, from beginning to end, without interruption.

Spaced viewing presentation: the showing of a motion picture with planned interruptions at designated locations.

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*Definitions taken from Educational Technology Definition and Glossary of Terms, Vol. 1 (Washington, D.C.: AECT, 1977).

Animation: a filming technique in which a single exposure is taken at a time with the motion picture camera. The results of this filming technique can give the illusion of movement to inanimate objects.

Continuity: the impression that the flow of the action that appears on the screen is proceeding smoothly with respect to both time and space.

Fade-in: when the projected image on the screen shows total darkness, and then slowly builds in light intensity to reveal the first visuals.

Fade-out: when the projected film slowly darkens until the screen is black.

Frame: a single exposure of motion picture film.

Shot: a single run of the camera; also, the basic division of film.

Cut: the joining of two segments of film (i.e., the joining of two shots); when one shot ends and the next one begins.

Close-up: a shot taken with the camera close to the subject so that only the subject is shown (usually the face).

Organization of the Study

Chapter I (this chapter) contains the following: a statement of the problem, the purpose of the study, the hypothesis to be tested and related research questions, the experimental procedures, the limitations of the study, the study's significance, and definition of terms.

Chapter II contains the review of literature pertinent to the study. The following areas are considered: overview of language, the language arts, and thinking, including a section on media in the language arts; film in education, including an historical perspective, current research, and a methodology for the film experiment; and, student writing, including an historical

perspective, methods of stimulation, and methods of evaluation.

Chapter III is the design of the experimental study and includes the following: background to the study, the purposes of the study, the hypothesis to be tested and related research questions, the experimental design and statistical measure, a description of the population to be studied, a description of the student writing evaluation methods, and the procedures used in conducting the experiment.

Chapter IV contains an analysis of the data obtained from the experiment.

Chapter V concludes the study. Included are the summary, the conclusions, a discussion, suggestions for future research, implications of the study, and a final word.

CHAPTER I NOTES

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[17]C. I. Hovland, A. A. Lumsdaine, and F. D. Sheffield, Experiments in Mass Communication (Princeton, New Jersey: Princeton University Press, 1949).

[18]Robert M. W. Travers, Research and Theory Related to Audiovisual Information Transmission (Washington, D.C.: U.S. Department of Health, Education, and Welfare, Office of Education, Contract #3-20-003, 1967).

[19]Snider, "Selection and Use of Visual Media, p. 127.

[20]James Moffett and Betty Jane Wagner, Student-Centered Language Arts and Reading, K-13, 2nd ed. (Boston: Houghton Mifflin Co., 1976), p. 42.

CHAPTER II

REVIEW OF THE LITERATURE

The basic purpose of this experimental study is to determine if a Spaced viewing presentation of a motion picture is a greater stimulus to creative writing than a Massed viewing presentation of the same motion picture. The basic experimental design has several interrelated components:

1. The use of film in the language arts classroom
2. Film as stimulus to creative writing
3. Student-teacher interaction as stimulus to creative writing
4. Evaluation of writing
5. Instructional effectiveness of a motion picture designed to be stopped for student participation

These components comprise the major areas of research in the study and are included in the following review of literature.

Overview: Language, Language Arts, and Thinking

Language is at the center of the curricular area known as the language arts, an area composed of the skills listening, speaking, reading, and writing. This focus on

language, according to Petty, Petty, and Becking,[1] emphasizes the middle ground between (1) the more narrow elements associated with traditional English instruction, such as writing, grammar, and literature; and, (2) the broad aspects of communication, such as sound, sight, feel, and smell. The central position of language in the school experience is emphasized by E. Brooks Smith:

> The child is surely at the center of the learning process, for he will only learn what he can incorporate into his knowing. The teacher is certainly at the center of what will be taught, for he alone can prepare the environment and set the stage for instruction. But language is central to the interaction of teaching and learning that produces knowing.[2]

We see from the above comments by Petty and Smith that language (1) facilitates the interaction between teaching and learning; and (2) interlinks the skills of listening, speaking, reading, and writing. The interrelationship among the four skills redefines language as a new subject or, more precisely, as a non-subject:

> Language learning is different from other school subjects. It is not a new subject, and it is not even a subject. It permeates every part of people's lives. . . . Since people learn language outside of school and before they enter school, you should think of it as a continuity that you will try to help youngsters develop while they are passing through your hands. (Moffett[3])

The continuity to which Moffett refers is maintained in the classroom through meaningful experiences:

> All experience producing and receiving language teaches and refines control of grammar . . . and the best approach to experience language is to interweave the language arts in a conscious, well-thought out design.[4]

Lundsteen agrees with Moffett's experiential approach to learning:

> Ideally, teachers help develop language in the school by an inter-related program designed to encourage various uses. The emphasis is on thinking skills, because the curriculum for language learning is a program in thinking. . . .[5]

Lundsteen's emphasis on thinking adds an important element to language learning and the language arts: thinking. According to Vygotsky speech and thought are unrelated in the beginning stages of child development, but soon they begin to merge:

> Up to a certain point in time, the two follow different lines independently of each other. At a certain point these lines meet, whereupon thought becomes verbal and speech rational.[6]

As language develops, therefore, it becomes a convenient symbolic medium for thought (Smith[7]), and thinking becomes the underlying principle to all language learning.

This overview will close with one final observation on the language arts. The 1966 Dartmouth Seminar on the teaching of English recognized the importance of the proliferation of audiovisual stimuli through the mass media in today's society. The Seminar acknowledged the importance of this impact by concluding that literature today includes

> . . . the television presentation as well as the printed book, and that both are the responsibility of the English department. This has complex and far-reaching implications. The making of a tape or film, the holding of an inter-school conference, may become as natural forms of presentation as the making of a magazine.[8]

The importance of visual communication, therefore, adds a fifth skill to the traditional four language arts skills: viewing.

Media in the Language Arts

The increasing importance of media to education is emphasized by W. Willard Wirtz, chairman of an independent panel studying the decline in S.A.T. scores, who comments on behalf of the panel that

> . . . TV and other mass media probably have the largest teaching potential that we know about today. . . .[9]

And Jean Phillips comments that

> As educators discover more about how children learn, they are beginning to realize that visual, verbal, and cognitive skills are interconnected . . . films and audiovisual materials can be used effectively as an integral part of the curriculum.[10]

If language is best learned experientially (Moffett,[11] Lundsteen[12]), and if language is a blend of such strongly interrelated skills as listening, speaking, reading, writing, and viewing (Petty, Petty, and Becking;[13] and Moffett[14]), then the multifaceted qualities of film make this medium of expression a natural ally of the language arts. Smith comments on the harmony between film and language as follows:

> The dramatic forms of theater, movies, and television can at their best integrate the several symbolic forms (including language) and create a cognitive and emotional impact impossible in the separate forms.[15]

Sheridan explains that film has

> . . . a special quality which no one has yet satisfactorily named. It is something like immediacy or instantaneousness, an astonishing total impact on the senses.[16]

Sheridan compares film to literature in that they both share the qualities form, structure, theme, irony, metaphor, and symbol.[17] Film, like opera, can transcend several modes of artistic expression: music, song, theater, and dance. McAnany and Williams compare film to music:

> Time is somehow of the essence of both film and music. There are many aspects of time in a film: the timing of the various movements of subject and camera, the duration of shots to create a rhythm within a scene or sequence, and the time within the story itself that the filmmaker creates.[18]

And Frye[19] offers that film and literature are art forms in which the poet, the novelist, and the filmmaker express themselves through the use of the pen or camera.

The qualities inherent in film, therefore, are complementary to the dynamics of the language arts classroom. This sets the stage for the general problem: how to best adapt film to language learning.

Film in Education

Audiovisual materials have been used in education for many years, primarily as adjuncts to verbal presentations, textbooks, chalkboards, library materials, and other traditional means of instruction (Kemp[20]). The 16mm film was developed in the 1920s and 1930s; its values in education have been questioned by some authors (Miller,

Levine, and Sternberger;[21] Hooper[22]), and praised by others (Vandermeer,[23] Goodwin,[24] and Phillips[25]). Goodwin's support of film includes the following: (1) films can influence the students in ways that help them retain information more effectively than when the same material is presented verbally; (2) films can promote critical thinking and problem solving; (3) films can stimulate children to explore and research a given subject; and, (4) films help students think creatively and with a purpose, they stimulate the imagination, and they offer vicarious experiences that are most useful in an educational setting.[26] Phillips believes that

> Films inform, involve, and demand response from students. A good film brings forth from the viewer a reaction or response that involves the viewer visually and imaginatively.[27]

On the other hand, May and Lumsdaine[28] explain that more precise information is needed on the effectiveness of film (e.g., the characteristics of superior films, effective teaching methods, knowledge of the viewer's cognitive capabilities, and the teacher variable). Travers[29] suggests that the problem of film effectiveness in education lies in a lack of a theoretical base. He believes, however, that a possible solution is developing:

> Within the last decade research in psychology has taken a turn which may end the impasse and which may lead to a close working association between those concerned with the design of audiovisual aids and those engaged in psychological research.[30]

According to Travers, therefore, individuals designing motion pictures in the future would be concerned with perception, attention, concept learning, the development of meaning, forgetting and remembering, and verbalism. Salomon and Clark agree with Travers. They believe that the intrinsic nature of the medium can be understood; to realize this understanding, they suggest that the

> . . . attributes of media and technology be conceptualized in terms of their psychological or instructional effects and functions, rather than in terms of their physical appearance.[31]

Providing a psychological-theoretical base to educational film gives it a definition as well. Lumsdaine and May, for example, state that the only criteria for an effective motion picture is its ultimate influence on the learner as measured by objective examination:

> . . . the success of a teaching film, unlike that of a film designed primarily for entertainment, cannot be assessed merely in terms of its popularity or even in terms of judgments about its artistic merits. Rather, the statement that an educational film is successful in accomplishing something makes the implicit assumption that pupils who have seen a film are expected to differ from what they were before they saw the film.[32]

Therefore, an objective measure of change is required to verify the film's effectiveness:

> The measure . . . is the gain (or loss) in the percentage of pupils of a defined sample who correctly answered each item on a test.[33]

This approach to the understanding of instructional film concerns, primarily, the cognitive domain: the use of film to teach factual information.

This study concerns the use of film as a stimulus to creative writing; a motion picture is considered as a whole, and its specific attributes are not analyzed by an objective test. The study does consider two elements of film that need to be explored: effective teaching methods and the teacher variable (Lumsdaine and May[34]).

A Search for a Comparable Motion Picture

Over a two-year period this researcher reviewed related studies and motion pictures, and failed to locate an experimental study comparable to this one. A study designed to integrate questioning strategies within a motion picture as stimulus to creative writing is, therefore, unique. The two-year quest for a comparable study included

1. Four computerized searches of the ERIC system
2. A personal search of the Dissertation Abstracts, 1972-1977, and a search through the Comprehensive Dissertation Index (1861-1972).
3. Personal conversations with individuals in the motion picture industry
4. General research in the Michigan State University Library
5. A personal search through the Landers Film Reviews, a guide that describes existing 16mm instructional films (1942-1977)

The various researches located studies and films that incorporated select elements of the present study, but none that included all of them. The Landers Film Reviews described several films under the heading Language

Arts that were designed to evoke feelings from words, music, and visuals. This type of film fits Adele Stern's[35] comments on the film medium. She explains that a film takes place in a darkened room and that it involves the senses completely. This sensual concentration can be used as a powerful stimulus for the teaching of composition. The Landers reviews also described films designed without an ending or with an ambiguous ending; the inconclusive nature of these films offers teachers a point of departure for discussion.

Several motion pictures designed to be stopped for discussion were located in the Landers film reviews. The films were produced by Churchill Films, and were described as open-ended, with stopping points for discussion within the viewing; their ultimate goal was to stimulate creative writing. Bob Churchill, producer of Churchill films, offered to send the researcher four of the open-ended films.[36] The researcher previewed each film, but found a vast difference between the description offered by Churchill and what was shown on the screen. The films show a teacher in a classroom setting discussing with students several stories (e.g., "Little Red Riding Hood," "Cinderella," etc.). The screen teacher, by means of questioning strategies, induces the screen children to think about the stories. At key points in the motion picture the screen teacher asks the students to perform a writing task during the next five minutes. The next shot

on the screen shows a sign that instructs the projectionist to stop the projector and to let the class viewing the film write for five minutes. After the writing, the projector is turned on again. The screen teacher appears and tells his own screen class to please stop writing, and the film lesson continues. This particular film design of Churchill's is vastly different from a design that (1) portrays on the screen the story itself; and, (2) includes stopping points for purposes of discussion.

Other telephone calls were placed with the hope of locating films or studies comparable to this one. For example, Arlene Muskovitch, Educational Representative of the National Film Board of Canada, Province of Ontario, mentioned that the Provincial Government was developing a language arts curriculum that incorporated motion pictures, but that film was not being used in any specific way.[37] Barbara Angel, of the National Film Board of Canada--Prairies Region (Winnipeg, Manitoba), also mentioned that she knew of no films that were being used specifically to stimulate creative writing by means of student-teacher interaction.[38]

Film Studies: A Historical Perspective

Numerous studies and projects on the use of motion pictures have been conducted throughout the last fifty years. Three of the most significant studies--the Educational Motion Picture Project of the American Council on

Education, the University of Nebraska Film Project, and the Yale Motion Picture Research Project--are summarized on the following pages.

1. The Educational Motion Picture Project of the American Council on Education. The most comprehensive project related to film and education occurred over forty years ago. The Educational Motion Picture Project of the American Council on Education was organized in 1935 to

> . . . serve as a clearing house of information on the educational motion picture and to encourage the development and wider use of such pictures. Its problems center in film supply and production needs, distribution of films, and their use in the classroom.[39]

Over a five-year period the Motion Picture Project was involved, on a national scale, in all the areas it set out to investigate. In relation to this study, one of the most important segments of the Motion Picture Project was the program conducted in Tower Hill School (K-12), Wilmington, Delaware. The questions asked were

1. What is the function of motion pictures in education?
2. What educational objectives can specific films serve?
3. What are the strengths and weaknesses of existing films?
4. Is there one or are there several best ways of using films?
5. Can the same film be used on different grade levels for different purposes?
6. Are reactions of children on these different levels the same or different?[40]

The study was to be exploratory, without experimental interruptions of normal classroom situations. The answers to the six questions above were to be sought by using films in the normal activities of the school. Evaluation included judgment forms, anecdotal records kept by teachers, records of student expressions, interviews, film diaries, and paper and pencil tests. The project at Tower Hill included twenty-eight of thirty-five teachers in the school, and lasted from April 1938 to June 1939.[41] The basic results of the Motion Picture Project included: (1) motion pictures can be used to establish a learning environment in which students and teachers can become effectively involved in different learning activities; (2) motion pictures can help improve instructional techniques; and, (3) motion pictures can help mould a dynamic curriculum.[42]

2. The University of Nebraska Film Project. Professional films were tested from 1945 to 1950 by the University of Nebraska[43] with high school students in science and social studies classes. The purpose of the study was to enrich the existing curriculum as well as to create new areas of study. The evaluation of the films included standardized subject matter tests and tests composed of material in the motion pictures. The results of the Nebraska project were more specific than the Motion Picture Project conclusions. The Nebraska results included the following:

1. Films were effective in teaching facts and information
2. Bright students profit more from films
3. Teacher experience shows no difference in terms of film use
4. American History and general science were learned more by use of film than not[44]

3. The Yale Motion Picture Research Project.

Between 1946 and 1954 the Yale Motion Picture Research Project[45] evaluated experimental pilot teaching films and considered problems of production and utilization. The project looked at the effectiveness of specific components of film: the use of color versus the use of black-and-white, live action dialogue versus off-stage commentary, conscious inclusion of humor versus not including humor, and printed questions that appear on the screen versus no questions. The following are representative of the results of the project:

1. There is no difference between the use of color or black-and-white in relation to factual learning
2. The off-stage commentary is superior to live action dialogue in relation to factual learning
3. Humor did not increase learning
4. Printed questions inserted in the body of a film increase factual learning

While later research results may have questioned or even modified findings from these studies, they must still be considered important milestones in the field of motion picture utilization.

There have been numerous individual research studies on film, as well as reviews of individual research studies. The studies reviewed below are related to those components of this study that concern the educational effectiveness of interrupting a film for student participation.

Film Research Related to This Study

The location of questions during an instructional presentation has been investigated in both the print and film mode. Rothkopf and Bisbicos,[46] for example, found that inserting questions before the presentation of factual prose material is more effective in retention of information than asking the questions after the material is presented. Frase's[47] study concurred with Rothkopf and Bisbicos. Kantor[48] also investigated question position with instructional content; rather than using prose material, however, he used film. Kantor modified one film and used it three ways: film version A had questions inserted before the content appeared on the screen; film version B used identical questions after the content was shown; and, film version C was used as control (no questions appeared in the film). The results of the study concluded that all three versions of the film were equally effective.

Research exists on the effectiveness of stopping films for purpose of student involvement. Hovland,

Lumsdaine, and Sheffield,[49] for example, found that audience participation during the viewing of a film (while the film is stopped) increases student learning. Travers,[50] in addition, determined that the student's response during the time the film is stopped need not be overt; student participation is as effective to factual learning if the response is covert (i.e., mental practice by the student is as effective).

The complexity of combining discussion with film in an experimental study was encountered by Howell.[51] The purpose of the study was to compare the relative effects of two stimuli on student discussion. The first problem encountered concerned measuring discussion. There are two basic methods: quanitative and qualitative. The researcher chose the quantitative method; qualitative methods were

> . . . omitted because of its enormous complexity, and because there seems to be no clear basis for predicting how it might be affected by educational films.[52]

The two stimuli compared in the study were: (1) films as stimuli for discussion; and, (2) topics (e.g., "science," "biology," etc.) as stimuli for discussion. A problem arose from the relative importance of four independent variables: the teacher, the students, the films, and the topics. It was decided to keep the teacher and the students constant, and to vary the films and the topics. This meant that the teachers would remain with their regular classes; the variable to be investigated

would be different films and different topics. This design makes the assumption that students and teachers are equal; there are several factors that question this assumption. First, the variety of the teachers' discussion methods as shown below.

Some teachers in the study, for example, would lead the discussion totally, while other teachers removed themselves from their central position and let the students conduct the discussion. Three different styles of discussion were noted; out of a total of five teachers in the study, two used one style, two used a second style, and the fifth teacher used a style different from the other four teachers. This third style was deemed unacceptable, and the teacher was not included in the experiment. This left four teachers and two styles of discussion. There were eight experimental classrooms, and each teacher was responsible for two. Since there are two styles of discussion, this total number (8) must be halved, leaving four experimental classrooms per discussion group. The following depicts this condition:

Teachers using discussion method A		Teachers using discussion method B	
Teacher 1	Classroom 1	Teacher 3	Classroom 5
	Classroom 2		Classroom 6
Teacher 2	Classroom 3	Teacher 4	Classroom 7
	Classroom 4		Classroom 8

Howell's study admitted that discussion method A is distinctly different from discussion method B. If the teacher is kept constant, the study, therefore, must eliminate either method A or method B; this reduces the total N by one-half. There is an additional related problem, however. When a teacher leads an open discussion, the students become psychologically intertwined. In terms of statistical experimentation, the total classroom then becomes the subject (i.e., N = 1).[53] There are four classrooms in either discussion group A or discussion group B of Howell's study; the total N, therefore, can only be a maximum of N = 4. This total is not enough to be statistically significant; an acceptable figure when performing research on human beings is N = 100 (Busk).[54]

Another problem concerned the films' inherent qualities:

> . . . there may have been an unavoidable bias favoring the films because producers of teaching films tend to select for filming topics of interest to pupils. Furthermore, some films are constructed for the purpose of provoking discussion.[55]

A related problem concerned the inequality of discussion time allotted to films and topic groups. Films took longer class time than the presentation of each topic; discussion of topics could begin, therefore, at an earlier time than the discussion after the films. Given a fixed amount of time per session, the time allotted for discussion was in favor of the topics.

The conclusions to the experiment were, ultimately:

> . . . the data obtained are not considered adequate to provide grounds for estimating the probabilities that films would be superior to topics. . . .[56]

The instructional value of using film in the natural classroom environment has been verified by several researchers; this characteristic is useful for two reasons. First, studies by Krasker,[57] Knowlton and Tilton,[58] and Hoban[59] have determined that films used for instructional purposes are best used when shown in the normal environment of the student's classroom. Second, the unique values of film have remained hidden, in part, due to the methodological problems of research design. Conway, for example, states that

> . . . an enormous disparity has existed between experimental settings and relevant situations. . . .[60]

According to Simonson,[61] a positive relationship exists between attitude and achievement; research indicates that when students have a positive attitude toward an area of learning they achieve in that area. When designing educational films, therefore, it would be wise to create a visual presentation that is specifically designed for the intended audience.

Hoban and Ormer,[62] in their summary of thirty-two years of film research, conclude that the instructional effectiveness of a film increases when an instructor applies principles of good instruction. Snider adds that

> As more and more research is done on the most effective ways of using films to teach, it is becoming

> apparent that . . . the teacher is one of the most important variables in determining how much a class will learn from a film.[63]

Jerome S. Bruner in The Process of Education makes a plea for a balanced perception of the merits of films and teachers:

> A perpetual feast of the best teaching films in the world, unrelated to other techniques of teaching, could produce bench-warming passivity.[64]

Bruner concludes his comments as follows:

> In sum, then, the teacher's task as communicator, model, and identification figure can be supported by a wise use of a variety of devices that expand experience, clarify it, and give it personal significance. There need be no conflict between the teacher and the aids of teaching. There will be no conflict if the development of aids takes into account the aims and the requirements of teaching. The film or television show as gimmick, the television system without substance or style in its programs, the pictographically vivid portrayal of the trivial--these will help neither the teacher nor the student. Problems of quality in curriculum cannot be dodged by the purchase of sixteen-millimeter projection equipment. . . . The intelligent use of . . . resources now available will depend on how well we are able to integrate the technique of the film maker or the program producer with the technique and wisdom of the skillful teacher.[65]

Methodology for Interaction: Teacher-Film-Students

Unfortunately, many teachers today are not using good instructional strategies with motion pictures. Roth,[66] for example, believes that teachers rely too much on media to teach, and not enough on their own ingenuity or ability. It is this lethargic teacher attitude that prompted Minor and Cafone to comment on the behavior of

teachers and students (i.e., viewers) when a film is shown in the classroom:

> Viewers operate with what we might call a "popcorn attitude" during viewing: they feel a break from the usual rigor of the classroom and they sit back, relax, and grab an imaginary bag of popcorn, and passively wait to be fed the message. Teachers, on the other hand--especially if they have viewed the film before--relax or busy themselves with some of the more mundane chores of their profession, such as grading or checking papers.[67]

An active role can be taken by the teacher to create a dynamic classroom environment by use of film and student-teacher interaction. One approach to creating this classroom environment is to adapt Stauffer's Directed Reading Thinking Activity[68] (also known as the D.R.T.A.) to include a motion picture.

Stauffer, in the area of reading instruction, uses questioning strategies to promote thinking. His D.R.T.A. is an effective way to stimulate children in the classroom to think critically. According to Stauffer the D.R.T.A. is effective because it makes children use questioning techniques:

> Children must learn to ask questions, to analyze questions others raise, to seek answers with judgment suspended until all the facts are in to make wise decisions, and to act.[69]

In addition, Stauffer believes that group instruction is essential in the D.R.T.A.

> It is in the dynamics of a group interaction that the thinking-reading skills can be honed and polished. Inquiring minds, focused on the same content, under the direction of a skilled teacher provide the wherewithal.[70]

In a D.R.T.A. the teacher leads the class in a group reading activity. The teacher sets the pace, and student-teacher interaction occurs before, during, or after the reading. Everyone has the same material before them:

> Insofar as materials are concerned, the one condition that needs to be met in a group D.R.T.A. is that all in the group read and examine the same material at the same time. This means that any book--history, science, arithmetic, geography, or fiction--can be used as long as all in the group have a copy.[71]

The basic elements of the D.R.T.A., teacher-directed student-teacher interaction with the same material, are easily transferred to media. For example, instead of each child having the same book, the book's printed material can be transferred to an overhead transparency and projected on a screen; all student eyes are focused on the same material at the same time, and the teacher can control the rate of reading. The basic elements of the D.R.T.A. can also be adapted to incorporate language arts skills other than reading. For example, a tape recorder can replace the book, and the teacher can control the development of a listening activity by controlling the tape recorder. And a myriad of skills can be developed by using a motion picture with the D.R.T.A. Minor and Cafone[72] suggest such an adaptation and call it the D.V.T.A. (Directed Viewing Thinking Activity). In a D.V.T.A., according to the authors, the teacher can lead a discussion before, during, or after the film viewing. Discussion during the viewing necessitates the stopping of

the projector; Minor and Cafone comment on where an appropriate interruption might occur:

> . . . one where the teacher judges that sufficient new input has been provided in the film to allow viewers to accept or refute their initial predictions. . . . The number of times the film is stopped should depend upon the nature of the film, the learner's purpose in viewing, and the teacher's purpose in showing the film.[73]

Unfortunately, 16mm films designed for classroom use are not designed to be stopped while being viewed. If they are stopped, several problems arise that disrupt the film's continuity: (1) the sound, if not turned off before stopping the projector, phases out in a most unnatural and unpleasant manner; (2) the interruption of both visuals and sound will probably be abrupt, unnatural, and distracting because films today are not designed to be interrupted in that way. Films usually are designed to be seen as a whole unit; a disruption of the continuous message will destroy the continuity of the film; and (3) the teacher will generally have difficulty in determining where the stop should be made because films are not designed to convey this information to the teacher. The solution to these problems is to design motion pictures with logical stopping points that can be used as guides to safeguard the film's continuity. With this film design it would be possible to adapt Stauffer's D.R.T.A. and create an effective Directed Viewing Thinking Activity. The D.V.T.A. could be guided by the teacher to develop any of the language arts skills. And there could be an added fillip to the design of the

film that would offer the teacher another opportunity for student-teacher interaction: an open-ended story. This is the film design created for this study.

In this study's film design the students, after experiencing a viewing, listening, and thinking activity, are at a peak of concentration. Since no ending is furnished, a logical closure is to urge the children to help the filmmakers by writing an ending to the unfinished story. This language arts activity will ease them out of the intense situation they are in. The film, a vicarious experience shared by the class and the teacher, is now transferred by the students to print. The extension from viewing to writing is a natural process; Stern,[74] for example, believes that all forms of writing--exposition, literary criticism, narration, dialogue, description, and poetry--have parallels in the film medium. The fusion of viewing and writing creates a powerful instructional ambience. But writing, in this study, will be more than the culminating experience of the viewing; it will also be the measure of the effectiveness of two viewing experiences, a massed presentation and a spaced presentation. It will be useful, therefore, to examine this language arts skill in greater detail.

Student Writing

Historical Perspective

Composition instruction in the United States has fluctuated periodically over the last hundred years between rigid formalism and a student-centered, expressionistic view. A study by Capps[75] showed that the period 1886-1926 brought many reforms against the rigid classroom procedures of the nineteenth century. A major thrust influencing the teaching of English came from the Report of the Committee of Ten published in 1894 by the National Educational Association. The report, according to Kantor,[76] gave important recommendations for the teaching of composition. At the elementary level the report emphasized that

> . . . every thought which a child expresses can be deemed a proper subject for linguistic investigation and that any school subject might serve the purpose of such expression.[77]

This new outlook resulted in the introduction of imaginative writing activities in the primary grades based upon observation and experience, primarily.

Methods textbooks increasingly recommended a general approach to teaching primary school. Burke Hinsdale's 1896 text, Teaching the Language Arts, discussed the teaching of composition in a manner espoused by comtemporary authors. According to Hinsdale[78] there were two necessary qualities for effective composition: the inception of ideas and the ordering of these ideas into sentences and paragraphs. Hinsdale believed that a

teacher's first responsibility was to encourage the child to express himself and thereby develop fluency and ease in language; formal grammar and rhetoric were not components of writing instruction.

Percival Chubb[79] suggested in 1902 that the child had a natural, inherent need to express himself, and that writing experiences could be designed to meet this need; it was up to the teacher to provide the means. And James Snoddy, author of "English Composition in the Elementary Schools," also believed in arousing student interest through personal experience. Snoddy believed that students should learn to write by writing, an approach that was

> . . . much more desirable and should be practiced instead of having students waste time in memorizing the senseless rules and endless details of the so-called English grammar.[80]

But in these early years of the twentieth century, other forces countered the movement toward a more experiential approach to composition. A trend toward higher efficiency in education, for example, exemplified by Thorndike's belief that student writing was measurable quantitatively, discouraged creativity in children's writing.[81] The Hosic Report of 1917, on the other hand, sought to combine efficiency in teaching with students' social needs. An important conclusion of the Report emphasized the close relationship between speaking and writing.[82]

The advent of World War I introduced specific use of composition to serve patriotic ideals. This resulted in a generally conservative, teacher-directed curriculum. In the 1920s, however, a move toward English as art ensued, and composition again became student-centered. This was the beginning of the progressive era of education, represented by the views of Rugg, Mearns, and Dewey.[83]

In 1935 the Experience Curriculum, produced by the Commission on the English Curriculum of the National Council of Teachers of English, emphasized creativity and pupil experience as integral to writing. The curriculum, however, was not accepted by all educators, and a growing divergence in educational opinion arose: the subjectivists, who believed in a psychological base to creativity, and the objectivists, who espoused a sociological view.
World War II returned a perspective to writing that encompassed social efficiency and patriotism. After the war, conservative thinking expanded: a reaction to the progressive views of Rousseau and Pestalozzi and their twentieth century disciples, Rugg, Mearns, and Dewey.[84]
In addition, the focus on technology during the 1950s further restrained written creative expression. Not until Project English and the Dartmouth Seminar in the 1960s did children's creative expression become again defined as an important component of the English curriculum.

Project English, with Jerome S. Bruner as its main spokesman, linked creative writing with cognitive learning

and intellectual development, whereas the Dartmouth Seminar, composed of authors such as James Moffett and John Dixon, stressed the affective aspects of the process of writing.

Unfortunately, the trend toward a student-centered curriculum begun in the 1960s remains in theory and not in practice. Robards,[85] for example, surveying textbooks used in 1973 found that they contained lessons on composition but that they placed more emphasis on the mechanics of writing than on any other aspect of the instructional program.

It seems, therefore, that during the last hundred years children's writing in school has vacillated between emphasis on mechanical aspects of writing and freedom of expression. Today, theorists stress that children must be self-directed in their writing; today's classrooms, however, continue to put more attention on the mechanics of writing than on the thought and feelings of young writers (Smith,[86] Jones[87]).

Authorities do not identify one single, superior method for instruction in writing (Lundsteen[88]). There is support in the research, however, for various components of an elementary school writing program. Some of these aspects are reported below.

Stimulating Writing: Audio-visuals and Other Devices

The psychologist Sheviakov[89] suggests four concepts that motivate children to write: (1) self-competency--children want to feel competent and to respect themselves for it; (2) modeling--children want to identify with a competent adult figure; (3) personal acceptance--children want to be respected, accepted, forgiven, understood, and loved; and, (4) peer status--children want to be liked by their classmates. These four concepts are interrelated and although they are useful in describing possible reasons why children would want to write, they do not specify how a given instructional strategy might induce a child to write. Lundsteen[90] observes this problem from a perspective that uses two concepts: motivation and stimulation. Stimulation to write arises from an outside influence, whereas motivation results from an inner-directed drive. Most studies concern stimulating devices or procedures. Kafka,[91] on the other hand, investigated writing as an inner-directed procedure. Kafka studied the effects on children's writing of four procedures: (1) auditory stimulus; (2) visual stimulus; (3) tactile stimulus; and, (4) no sensory stimuli. The children who were exposed to no stimuli produced higher quality papers, and Kafka concluded that children tend to write better from an internal stimulus. Lundsteen's[92] review of the Kafka study, however, warns that the results might have

been biased due to (1) the children's unfamiliarity with the researcher and the three outside stimuli, and (2) the tentativeness of the evaluation instrument. Graves[93] also concluded that inner-directed writing is superior to outer-motivated writing. Emig,[94] on the other hand, declares that subsequent studies contradict this specific finding by Graves. Nonetheless, Emig suggests that teachers consider the possible values of letting children make their own decisions on writing tasks.

The majority of studies on children's writing, however, fall in the area of devices used as stimuli. For example, Golub and Fredrick[95] researched children's writing under different stimulus conditions. The study compared differences in the writing of upper elementary students when two stimuli, pictures and instructions for writing, were presented in various forms. The stimuli were categorized as (1) general versus specific instructions to students, (2) color versus black-and-white pictures, and (3) concrete versus abstract pictures. The writing samples were taken in the students' regular language arts classrooms. Eighty fourth graders and eighty sixth graders participated; there were eight classrooms in the study. The pictures and the instructions were randomly assigned within each of the eight classrooms. Each subject received both the instructions and a picture, read and studied them, and wrote a response. Three raters evaluated the written responses using their own intuition;

no instructions were given to the raters on the criteria to be used. Their correlations were .64, .66, and .80. The results of the analysis showed no difference in writing based on the instructions given to students. A difference was found between color and black-and-white pictures in favor of the black-and-white images. Lastly, no difference was found between concrete and abstract pictures as they relate to writing quality.

Freden[96] investigated three stimuli on ninth grade students' responses to films: (1) an introduction to a film that included the film's title, director, awards, and film subject; (2) an introduction to a film that included film title, director, awards, film subject, and two questions related to the film; and (3) an introduction that included only the film's title. After viewing, the students wrote opinions and reactions to the films. Two independent raters evaluated the writings using the Purves categories instrument for literature. Differences detected: introductions to films did result in higher quality writing.

Uehara[97] conducted a study to investigate the effectiveness of three different stimuli on the quality of children's writing. The three stimuli were (1) a set of pictures; (3) a recording of a series of environmental sounds; and, (3) a film-without-words. The total population consisted of one class of third graders and one class of fifth graders in a middle class, southwestern city. The pupils in each class were divided into three groups.

Each of the three groups wrote a composition after being exposed to the stimuli. The total rotation took nine days. The student writings were analyzed quantitatively using Hunt's T-unit; the number of different adjectives per one hundred words; the number of coordinate nominal, and relative clauses; and, a type-token ratio. The quality of writing was determined by the Carlson Analytical Scale for Measuring the Originality of Children's Stories. The analysis of the data, using a two-way three-factor analysis of variance with repeated measures, showed no difference among the three stimuli.

A study by Ewing[98] concerned the effects on children's writing of four experimental conditions: (1) no stimulus--the children were simply asked to write a story; (2) an auditory stimulus--the children wrote after hearing musical selections; (3) a visual stimulus--the children wrote after viewing a film without words; and (4) motor stimulus--the children wrote after drawing a picture. The study included sixty-four third graders in three schools; each student wrote after being exposed to each of the four stimuli.

Ewing was interested in possible differences in total number of words written, the total number of different sentence structures used, the number of different words used, and the T-unit length. The written pieces were rated by two methods: a frequency count and the evaluation of five trained judges. Non-parametric

statistics were used in the analysis of the data, and the results at the .05 level showed that the no-stimulus group performed best overall, followed by the auditory stimulus, the visual stimulus, and the motor stimulus. The results of a related research question are of interest: differences by sex were significant, with girls superior to boys in fluency, vocabulary, and T-unit length. Also, the most effective stimulus for the girls, the no-stimulus treatment, was the leat effective stimulus for the boys.

Huntington[99] used a film without words as a stimulus to writing. He measured the syntactic complexity of the writing of sixth graders under three different post-viewing variables: (1) delay in the writing after the viewing; (2) reviewing the film content after the viewing; and (3) viewing the film a second time. Huntington found no difference among any of the various presentations. Edmund[100] compared vicarious versus direct experiences as stimuli to written expression. He found that vicarious experiences from books, television, radio, and films were a greater stimulus to writing than experiences taken from the children's own lives.

The studies reviewed above relate to stimulation of children's writing by physical devices such as sound, pictures, films, etc. The spoken word, in the form of questions, can also serve as a stimulus to writing. The next section explores the use of questioning strategies and their effects on children's composition.

Stimulating Writing: Questioning Strategies

The value of questioning for stimulating creative writing is, according to DeHaven,[101] two-fold: (1) questioning engages the teacher with the student to encourage and guide creative thinking; (2) well-phrased questions will keep the student at the center of the learning activity. DeHaven adds:

> . . . not random questions but a carefully structured sequence of questions that would serve as stimuli to pique students' intellectual curiosity and cause them to interact with words and ideas.[102]

Laque and Sherwood[103] agree with DeHaven by suggesting that the student and the teacher share in the writing process through an inductive, dialectical approach, a process that is

> . . . thinking, questioning, and doing, doing, questioning, and thinking, and thinking in what may be a never-ending cycle.[104]

The importance of questioning is further emphasized by Laque and Sherwood when they affirm that

> Socrates himself was suspicious of writing because it lacked the dialectical interplay of interlocutors; he felt that probing questions were necessary in order to arrive at the truth.[105]

And Hunkins adds that

> Questions must serve as guides by which students develop more in-depth perceptions. The teacher can ask questions to act as a catalyst to students' thinking. The teacher can formulate questions that direct and guide students in various avenues of search.[106]

The teacher, therefore, must understand what constitutes good questions and questioning strategies. Hunkins has

devised a methodology of questioning strategies based on Bloom's taxonomy of educational objectives: knowledge, comprehension, application, analysis, synthesis, and evaluation. Hunkins then lists a series of steps that lead to the formulation of effective questions: first, become knowledgeable in the different types of questions one might ask (i.e., to be aware, in a general sense, of the types of questions one wishes to ask); next, analyze the educational situation in which the questions will be asked (i.e., the students' background, interests, age, grade level, school, and environment). Goals and objectives of specific questions comprise step 3: do the questions fit the given situation? Step 4 concerns the types of questions one might ask: where do they fit in Bloom's taxonomy? Next, consider the instructional content and experiences one wishes to address by questioning: questions are vital elements of content; they must assist in the achievement of objectives and should facilitate the development of higher order abstractions, concepts, and generalizations.[107]

Two additional considerations that lead to the formulation of effective questions include (1) the time framework (high level questions take longer for development than lower level questioning; if the class time allows fifteen minutes, then high level questioning would probably not be appropriate); and (2) the wording of the questions (i.e., is it at an understandable syntactic

level? Does it relate directly to the students' prior experience and current class situation?).

Hunkins states that there are four possible functions of any questioning strategy: centering, expansion, distribution, and ordering.[108]

Centering is used to converge students' thinking on a particular topic. This concept is usually used at the introductory stage of a given topic and can involve all levels of Bloom's Taxonomy. Expansion helps students to extend their thinking; this concept helps students in divergent thinking. Distribution and order functions are closely related. Distribution offers a variety of questions to the given discussion, a variety based on the dynamics of the ongoing teacher/student dialogue. The last strategy, order questions, is concerned with classroom management; it provides rules for class investigation and rules for conduct. Two of Hunkin's questioning categories are specific to this study: centering and expansion. These two are the most important to convergent and divergent thinking. In convergent thinking

> . . . the individual converges on patterns in a logical manner, a narrowing of prospects in the field, a closing in of definition as already established. These are tested or seen in new situations.[109]

In divergent thinking the individual

> . . . moves out from a given situation and imagines many divergent possibilities, breaking away from formula and fact or established interpretations, experimenting and exploring with novel combinations.[110]

Smith[111] declares that both convergent and divergent thinking are essential to learning. Experiments show, unfortunately, that divergent thinking is generally ignored by teachers; children, in fact, are sometimes penalized for using divergent thinking strategies (Smith[112]). Of these two types of thinking (convergent and divergent), divergent is the most important to this study because it leads to an outward expansion of knowledge; this characteristic fits the questioning strategies and the open-ended nature of the experimental film.

The importance of questioning to education, as can be seen from the above, is widely acknowledged. And yet, as Lowery explains,

> . . . research studies on questioning as a means of teaching, both in instructional settings and in empirical investigations, are rare.[113]

The following researches, nonetheless, were found to be related to this study.

Manzo[114] conducted an investigation to test the effectiveness of a questioning strategy designed to improve reading comprehension. The forty-one students in the study ranged from age seven to age twenty-five; all were in a remedial reading program at Syracuse University. Students were assigned to one of two groups: (1) an experimental group that incorporated questioning strategies designed to induce children to raise their own questions; (2) a control group that received no stimulus from questioning. Exposure to each of the two treatments

was on an individual, tutorial basis, 1 1/2 hours per day. Results of the experiment, based on a standardized reading test, showed that the experimental group did significantly better than the control group in mean reading comprehension scores. The experimental group was also found to (1) ask a greater number of questions, and (2) ask questions at a higher level of complexity than the control group.

Vance[115] designed two sets of questioning strategies based on Bloom's taxonomy of the cognitive domain: high order questions and low order questions. The researcher wished to determine if there was a difference in the two sets of questions as they affect students' attitude and critical thinking. One-hundred sixteen students were randomly assigned to the two sets of questioning strategies. Using the Watson-Glaser Critical Thinking Appraisal instrument and a teacher-developed Semantic Differential Scale, the researcher found that students exposed to high order questioning performed better in critical thinking abilities related to evaluation of arguments, and had a higher conceptual attitude of tolerance than students exposed to the low order questioning.

Lucking[116] compared the effectiveness of teacher training and questioning strategies. The students in this study were asked to write essays after being exposed to three treatments: (1) no instructions to students concerning the essay they were to write; (2) instructions to students given by teachers without special training in

questioning skills; and (3) instructions to students by teachers trained in hierarchically-ordered questioning. A team of evaluators rated the essays using the Purves content analysis instrument; five categories were analyzed (Engagement, Perception, Interpretation, Evaluation, and Miscellaneous). Significance was determined at the .05 level for Interpretation and Evaluation. Conclusions derived from the analysis of the data show that teachers trained in hierarchically-ordered questioning techniques have a positive influence on student writing.

Mayo[117] investigated the effects of questioning strategies on the descriptive writing of tenth grade students. Six classes of tenth graders (Total N = 166) were assigned to three treatment groups: (1) students who received training in discussion skills and discussed the writing assignment prior to writing; (2) students who did not receive training in discussion skills but who discussed the writing assignment prior to writing, and (3) students who were not exposed to prior training or discussion. The training and discussion prior to writing concerned techniques in divergent and convergent questioning. Two raters evaluated the writing samples on the following criteria: overall effectiveness, content, organization, style, mechanics, and total score. A 3x2x2 analysis of covariance determined that students who were exposed to divergent questioning strategies provided higher quality

writing than the students who participated in convergent questioning.

Up to this point Chapter II includes some historical viewpoints, several opinions by different authors, and various reviews of research studies, all related to this study's major concern: the use of film and student-teacher interaction to stimulate children to write. The section that follows, evaluation of writing, concludes the chapter.

Evaluation of Writing

As Lundsteen declares in Help for the Teacher of Composition:

> To evaluate something as personal and complex as writing is not a simple matter. . . . The professional literature suggests an abundance of ways to encourage children to write but does not have nearly as much on how to evaluate what is written.[118]

The complexity of the writing act demands that its methods of evaluation be broad and deep. Lundsteen suggests that writing evaluation should be considered from the following methodological perspectives:

1. Methods to assess process as well as product
2. Methods to assess qualitative as well as quantitative improvement
3. Methods to assess the works of younger children as well as those of older children
4. Methods to assess different forms of writing, such as prose-fact, prose-fiction, and poetry.[119]

Hunt[120] has developed one successful quantitative method of evaluating writing. He has devised a basic unit of meaning known as the T-unit: one main clause and its

modifiers, if any. The basic unit can be tallied, giving a written piece a quantitative score. Lundsteen[121] states that other purely quantitative measures have proven to be too simple (e.g., comparing a count of simple versus complex sentences and drawing conclusions as to the quality of the writing based on this sum).

One method of writing evaluation observes the process of writing as well as the product (Hillerich[122]). A rationale for this method is that to the elementary school child the act of writing is as important, and perhaps more important, than the finished piece; it is advantageous, therefore, to consider the process of writing as a valid measure of writing productivity. The Graves[123] study, for example, is a comprehensive examination of the writing process of seven year olds. The study included other areas that affect the children's writing, such as peer relationships, class requirements, and the classroom environment of four second-grade classes. The main objective of Graves' research concerned the case study of eight children from the two classrooms; all students, however, were included to a certain extent to avoid isolating the students under observation and making them self-conscious.

Records were kept of the activities occurring in the classroom as students wrote, and assigned writings, as well as unassigned writings, were analyzed for length, content, and total productivity. The study is unique:

(1) the research is conducted in the natural classroom setting; (2) the complex relationships that exist during the writing process are considered. The major conclusions of the study include the following:

1. Children who have a free choice in writing will write more and longer pieces than children who are given specific assignments.

2. Girls prefer formal environments for writing, whereas boys prefer informal environments.

Graves found that unassigned writing resulted in four times as much writing as the assigned writing. Emig[124] reports, however, that subsequent studies seem to contradict this specific conclusion of Graves. Emig suggests, nonetheless, that teachers of composition should consider letting their students choose their own writing experiences.

Another method of evaluating writing concerns a Gestalt approach to the written piece. Gestalt implies

> . . . an organized configuration or pattern of experiences or of acts.[125]

General patterns within writing are considered by holistic evaluation, a term derived from its emphasis on the rater's impression of the whole piece of writing rather independent aspects of the whole, such as style, content, mechanics, etc. (Mellon[126]). This rating technique has been researched and used extensively by the Educational Testing Service. It is functional when three criteria are kept in mind by the raters:

1. The individual essays are evaluated in relation to the others in the particular group being

analyzed, not in relation to some external standard.

2. The raters must use all the rating categories a certain minimum percentage of the time--this insures that the total group of essays will be normally distributed.

3. The raters should not favor any one outstanding quality of a given piece. The raters must give all the qualities of a given essay equal merit. This warns the raters to guard against personal biases due to content, humor, style, etc.[127]

Diederich, a specialist in testing and measurement, emphasizes that holistic scoring techniques can be very reliable, and adds that a reliability of .80 is acceptable in measuring schoolwork. Reliability, according to Diederich, is increased if essays are graded based upon the rater's first impression.[128] In holistic scoring the rater does not make corrections or revisions in the paper. The procedure is very effective:

> Where there is commitment and time to do the work required to achieve reliability of judgment, holistic evaluation of writing remains the most valid and direct means of rank-ordering students by writing ability. Spending no more than two minutes on each paper, raters . . . can achieve a scoring reliability as high as .90 for individual writers. The scores provide a reliable rank-ordering of writers, an ordering which can then be used to make decisions about placement, special instruction, graduation, or grading. Since holistic evaluation can be as reliable as multiple-choice testing and since it is always more valid, it should have first claim on our attention when we need scores to rank-order a group of students.[129]

Cooper gives the following general description of holistic evaluation:

> . . . any procedure which stops short of enumerating linguistic, rhetorical, or informational features of a piece of writing. Some holistic procedures

> may specify a number of particular features and even require that each feature be scored separately, but the reader is never required to stop and count or tally incidents of the feature. The reader uses the list of features as a general guide--a set of reminders, a way of focusing--in reaching a holistic judgment.[130]

In more specific terms, Cooper gives seven types of holistic evaluation techniques: essay scale, analytic scale, dichotomous scale, feature analysis, primary trait scoring, center of gravity response, and general impression marking. Each one of these seven is considered below.

The essay scale dates to the 1920s and 1930s, when it was widely used by teachers and researchers; it is seldom used today. This technique incorporates a rank-ordering of the papers to be evaluated. The first step is to identify the highest quality paper and the lowest quality paper. The rest of the pieces are thereafter matched to these two extremes. The criteria for grouping and ranking the papers include realization (i.e., sincerity, spontaneity, and vividness); comprehension of subject matter; organization; density of information (i.e., the quantity of unique and significant information); and, control of written language, including rhetoric and syntax.

The analytic scale lists prominent features or characteristics of the written piece. The features listed usually number ten or twelve, and each feature is subdivided into three quality rankings: high, middle, or low. The analytic scale sample that appears on Table 2.1 was designed to evaluate the writing of college freshmen:

Table 2.1.--Analytic Scale.

	Low		Middle		High	
General Merit						
Ideas	2	4	6	8	10	
Organization	2	4	6	8	10	
Wording	1	2	3	4	5	
Flavor	1	2	3	4	5	_____
Mechanics						
Usage	1	2	3	4	5	
Punctuation	1	2	3	4	5	
Spelling	1	2	3	4	5	
Handwriting	1	2	3	4	5	_____
					Total	_____

A dichotomous scale comprises a series of statements that ask if certain criteria have been met; each statement is answered yes or no. This scale is useful in evaluating and comparing groups of essays, but is a bit too general for reliable scoring of individual written pieces. On Table 2.2 appears a sample of a dichotomous scale designed by Cooper.[131]

Feature analysis concentrates on a particular feature of a given piece of writing, such as its structure. For example, an instrument designed to measure the descriptive writing quality of a specific piece of writing would have nine categories of evaluation: indicated order,

Table 2.2.--Dichotomous Scale.

	Yes	No	Statement
Content I.	_____	_____	1. Ideas themselves are insightful.
	_____	_____	2. Ideas are creative or original.
	_____	_____	3. Ideas are rational or logical.
	_____	_____	4. Ideas are expressed with clarity.
Organization II.	_____	_____	5. There is a thesis.
	_____	_____	6. Order of thesis idea is followed throughout the essay.
	_____	_____	7. Thesis is adequately developed.
	_____	_____	8. Every paragraph is relevant to the thesis.
	_____	_____	9. Each paragraph has a controlling idea.
	_____	_____	10. Each paragraph is developed with relevant and concrete details.
	_____	_____	11. The details that are included are well ordered.
Mechanics III.	_____	_____	12. There are many misspellings.
	_____	_____	13. There are serious punctuation errors.
	_____	_____	14. Punctuation errors are excessive.
	_____	_____	15. There are errors in the use of verbs.
	_____	_____	16. There are errors in use of pronouns.
	_____	_____	17. There are errors in use of modifiers.
	_____	_____	18. There are distracting errors in word usage.
	_____	_____	19. The sentences are awkward.

principle of selection, methods of arrangement, syntax, balance, organization, connectives, openings, and conclusion. Feature analysis is flexible. It enables teachers and researchers to develop a scale for other structures of writing; Cooper gives as examples

> . . . voice and style of personal disclosure in autobiographical writing; structure or pattern in fictional prose; use of details and sensory images in writing up observations and interviews. . . .[132]

Primary trait scoring yields a reliable score when raters are given training. The rating guides in primary trait scoring direct the rater's attention to just those features of the piece that are relevant:

> . . . to the special blend of audience, speaker role, purpose, and subject required by that kind of disclosure and by the particular writing task.[133]

Center of gravity response is not intended for scoring but for formative response and feedback. It gives students a general outlook on his efforts, not on mistakes of spelling and usage. The rater reads the paper being evaluated and responds to it by paraphrasing what the writer said. After, the rater shows the writer the paraphrasing, and both begin a dialogue on the writer's piece.

Lastly, general impression marking requires no detailed discussion of features and no summing of scores given to separate features. The rater decides where a paper fits within the range of papers being evaluated. This method has been developed by the Educational Testing Service and the College Entrance Examination Board to score

the English Composition Test[134] and the Advanced Placement Test in English.[135] These two examinations are evaluated by raters who receive special training in this technique. On the other hand, James Britton and his colleagues at the University of London Institute of Education have achieved reliabilities as high as .82 between raters who, although experienced English teachers, were given only minimal instructions in the process (the raters, in fact, did not know each other, lived in different parts of England, and conducted their ratings through the mail).

The rating scales used in general impression marking vary. The Educational Testing Service used a scale of 1 to 4 in the English Composition Test and a scale of 1 to 8 in the Advanced Placement Test. The National Assessment of Educational Progress uses a 1 to 8 scale, and James Britton 0 to 10.[136]

In summary, holistic-general impression marking techniques are adaptable to this study for the following reasons: (1) it is a valid technique for rank-ordering a set of papers; (2) it is a reliable instrument; (3) it is convenient in that it requires no detailed discussion of features and no summing of scores given to separate features of the papers.

Summary

The purpose of this study is to investigate the effects of two uses of a silent motion picture on the

creative writing performance of fourth and fifth grade students. There are various components in the study's design:

1. The use of film in the language arts classroom
2. Film as stimulus to creative writing
3. Student-teacher interaction as stimulus to creative writing
4. Evaluation of writing
5. Instructional effectiveness of a motion picture designed to be stopped for student participation

A search of the literature failed to locate a comparable study. Nonetheless, related researches compose a mosaic that, inductively, gives the study an empirical base.

At the center of all school learning is language, a means of creative expression that permeates one's total existence. Educators believe that this ubiquitous quality disallows a fragmented approach to language teaching; it is believed a holistic approach is more effective than the use of traditional segments such as mechanics, grammar, etc. In addition, it is believed that experiential activities will offer the child a relevant and practical approach to learning language.

Children today are competent in the language of film; this medium of expression could be used effectively as a vicarious language learning experience. Unfortunately, although films have been used in education for over fifty years, its instructional value is still contested by some authors. A current trend that attempts

to define how films teach is to observe specific attributes of this medium and thereby build a theoretical base. This study does not look at specific attributes of film; it considers film as an entity that is most effective when used correctly by a teacher. The study investigates two ways of using one motion picture: student-teacher interaction within the viewing versus student-teacher interactions after the viewing.

The basic idea is to design a film that can be stopped at key points for student-teacher interaction without disrupting the film's continuity. A search of the literature failed to uncover a film, or a film study, designed to incorporate student-teacher interaction in this manner. Related studies were found that offered pertinent, useful information.

The culminating activity of the student-teacher interaction in both film presentations is writing. Most studies on methods of stimulating creative writing compare the effectiveness of various devices, such as pictures, music, sound effects, stories, or films; no single device has been found superior. A few studies concern questioning techniques as stimulation to writing. It is unfortunate that so little has been done in this area because questioning is an effective instructional technique.

Lastly, holistic-general impression evaluation procedures of writing are reliable, effective, and easily

adapted to the rigors of teaching; this method is ideal for this study's experimental design.

CHAPTER II NOTES

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CHAPTER III

DESIGN AND METHODOLOGY

This chapter contains a detailed explanation of the design of the study, including the following:

1. The purposes of the study.
2. The hypotheses to be tested and related research questions.
3. The experimental design, the design validity, and the statistical measure.
4. Background to the study, including the making of the motion picture and the preliminary tests on the use of the film in the elementary classroom.
5. A description of the population from which the sample was drawn and of the experimental groups.
6. A description of the student writing evaluation procedure.

Purposes of the Study

The basic purpose of this study is to answer the question:

> Is there a difference between two methods of using a motion picture: a Spaced presentation versus a Massed presentation?

The researcher created a silent motion picture designed to incorporate two questioning strategies. The questioning in film version A, the Spaced presentation, occurs as the film story develops (i.e., the projector is stopped at designated points in order to ask questions). The questioning in film version B, the Massed presentation, occurs after the viewing.

The film story is open-ended: the action builds to a climax and then stops (i.e., the film has no conclusion). This characteristic offers the researcher another device for continued questioning. The film is designed to be used at the elementary school level as a stimulus for children's written expression; after viewing the film and experiencing the questioning strategies students supply an original ending to the story by writing. It is hypothesized that the questioning strategies within version A, the Spaced viewing presentation, will foster better writing than the use of the same questions at the end of version B, the Massed viewing presentation.

Hypotheses

The main question of the study concerns the effectiveness of a questioning strategy integrated into a motion picture presentation as stimulus for creative writing for children. The intervening variable is the quality of the writing that follows the film/questioning presentation; the measure of the quality of the writing

will give a group mean. This group mean will be compared to a second group mean, one obtained from the writings following a film presentation that includes questioning strategies after the film. The quality of the writings, as reflected in group means, will be determined by a holistic evaluation instrument. The basic research question can be stated in null form as follows:

H_o: There is no difference between mean scores on the holistic measure of writing following the Spaced presentation and the mean scores on the holistic measure of writing following the Massed presentation.

H_1: There is a difference between mean scores on the holistic measure of writing following the Spaced presentation and the mean scores on the holistic measure of writing following the Massed presentation.

The hypothesis can also be expressed as:

H_o: $E(X) = E(Y)$

H_1: $E(X) \neq E(Y)$

In addition to the major hypothesis stated above, seven research questions will be asked related to differences by sex:

1. Is there a difference in the holistic scores of males versus females?

   Stated in null hypothesis form:

   H_o: There is no difference between the holistic scores of male subjects and female subjects

   H_1: There is a difference between the holistic scores of male subjects and female subjects

2. Is there a difference in the holistic scores of the Massed presentation: males versus females?

   Stated in null hypothesis form:

   H_o: There is no difference between the holistic scores of male subjects and female subjects in the Massed presentation

   H_1: There is a difference between the holistic scores of male subjects and female subjects in the Massed presentation

3. Is there a difference in the holistic scores of the Spaced presentation: males versus females?

   Stated in null hypothesis form:

   H_o: There is no difference between the holistic scores of male subjects and female subjects in the Spaced presentation

   H_1: There is a difference between the holistic scores of male subjects and female subjects in the Spaced presentation

4. Is there a difference in the top quartile holistic scores between males and females in the Massed presentation?

   Stated in null hypothesis form:

   H_o: There is no difference between the top quartile holistic scores of male subjects and female subjects in the Massed presentation

   H_1: There is a difference between the top quartile holistic scores of male subjects and female subjects in the Massed presentation

5. Is there a difference in the top quartile holistic scores between males and females in the Spaced presentation?

   Stated in null hypothesis form:

H_o: There is no difference between the top quartile holistic scores of male subjects and female subjects in the Spaced presentation

H_1: There is a difference between the top quartile holistic scores of male subjects and female subjects in the Spaced presentation

6. Is there a difference in the bottom quartile holistic scores between males and females in the Massed presentation?

   Stated in null hypothesis form:

   H_o: There is no difference between the bottom quartile holistic scores of male subjects and female subjects in the Massed presentation

   H_1: There is a difference between the bottom quartile holistic scores of male subjects and female subjects in the Massed presentation

7. Is there a difference in the bottom quartile holistic scores between males and females in the Spaced presentation?

   Stated in null hypothesis form:

   H_o: There is no difference between the bottom quartile holistic scores of male subjects and female subjects in the Spaced presentation

   H_1: There is a difference between the bottom quartile holistic scores of male subjects and female subjects in the Spaced presentation

Lastly, the relationship between writing performance and reading achievement will be investigated by asking the following three questions:

1. Is there a correlation between the Michigan Educational Assessment Program reading scores and the holistic scores?

2. Is there a correlation between the Michigan Educational Assessment Program reading scores and the holistic scores of students in the Spaced presentation?

3. Is there a correlation between the Michigan Educational Assessment Program reading scores and the holistic scores of students in the Massed presentation?

The Experimental Design

Randomization is used to eliminate initial bias between the two groups[1] (i.e., between those exposed to film version A, the Spaced presentation, and film version B, the Massed presentation). Isaac and Michael explain that

> . . . randomization techniques permit him to declare that at the time of assignment the groups were equal. The probability theory tells him to what extent the randomly assigned subjects in the two groups might have been expected to differ by chance on T_1 and the test of significance takes account of such chance difference.[2]

The assignment of the eight classrooms to the Massed presentation and the Spaced presentation was by randomization; a flip of a coin determined which classrooms would witness either film version A or film version B.

Control was established by using the Massed presentation as a frame of reference for the Spaced presentation; that is, film version B, the Massed presentation, was used

as the control, and film version A, the Spaced presentation, was the treatment. Because this experimental design does not incorporate a pretest, it follows the Randomized Control-Group Posttest Only design model. According to Isaac and Michael,

> After the subjects are assigned at random to groups, the experimental group is exposed to X, such as a film with a racial prejudice theme, and the control group is not. During or after the exposure to X, the two groups are tested for the first time. Their scores are compared to ascertain the effect of X, and an appropriate test of significance is applied to determine whether the difference is greater than might have occurred by chance.[3]

In this experiment, the treatment group is exposed to the film with questioning strategies interspersed within the viewing (the Spaced presentation), and the control group is exposed to the film with questioning strategies at the end of the viewing (the Massed presentation). A graphic illustration of the experimental design is offered by Isaac and Michael on Table 3.1.[4]

Table 3.1.--The Experimental Design.

	Pretest	Treatment	Posttest
Experimental Group (R)*		X	T_2
Control Group (R)			T_2

*Random assignment

Design Validity

The two groups are assumed to be equivalent on the basis of random selection. According to Isaac and Michael, the design

> . . . controls for, but does not measure the effects of history, maturation, and pretesting. It is particularly useful when pretests are unavailable, inconvenient, or too costly; when subjects' anonymity must be kept; and when a pretest may interact with X.[5]

In this case, a pretest would interact with the treatment, because only this particular film would be valid as a pretest. The film was designed specifically as the stimulus to creative writing. A different stimulus would not be a valid measure in terms of the study's design.

The Statistical Measure

The experimental data obtained from the holistic evaluation of the two sets of papers (i.e., the scores of the papers) will be rank ordered for analysis. The statistic designed to examine this type of non-parametric data is the Mann-Whitney test for two independent samples, a test that, according to Hays, is

> . . . one of the best of the non-parametric techniques with respect to power and power efficiency . . . an extremely useful device for the comparison of two independent groups.[6]

The Mann-Whitney test for two independent samples uses the following formula:

$$\sigma_U^2 = \frac{N_1 N_2}{12}\left[N_1 + N_2 + 1 - \frac{\sum_{i=1}^{G}(b_i^3 - t_i)}{(N_1 + N_2)(N_1 + N_2 - 1)}\right]$$

Background to the Study

As part of the requirements for a graduate course, the researcher conducted a study titled "A Study of Dolls Advertised, Sold, and Used in the Lansing (MI.) Area: Fall, 1975." The results of the study (Appendix A) showed the most popular doll for girls was the Barbie; boys preferred G.I. Joe, the Star Trek Cast, the Super Heroes (Batman, Captain Marvel, and Tarzan), the Lone Ranger and Tonto, and the Bionic Man.

In the winter of 1976 the researcher created a motion picture as partial fulfillment of the requirements of a course in cinematography through the Department of Telecommunications at Michigan State University. For seven years prior to making the film, the researcher had been using instructional media at the elementary classroom level: in private and public schools, in the South, East, and Midwest of the United States, with self-contained and open classrooms, with normal children and those considered emotionally disturbed, and with children whose native language was not English. In each of these varied educational environments the researcher made use of varying instructional media: film, videotape, television, photography, and graphics; and sought methods for making

media presentations more significant in classroom instruction. Stauffer's Directed Reading Thinking Activity (D.R.T.A.)[7] offered a methodology that could be adapted to educational technology, specifically, the design of a film that could be stopped at given points for teacher-student interaction. D.R.T.A. provided a rationale for the motion picture that was developed for the Telecommunications class in the winter of 1976.

Filming Techniques

The experimental film was also designed to integrate the results of the doll study conducted the previous school term, namely, the toy figures that had been found to be of high interest. Those chosen as film characters would have, therefore, a high stimulus value for elementary school children:

1. The Super Heroes, including Tarzan, Batman, and Captain Marvel.
2. Mr. Spock from Star Trek.
3. A Barbie doll.

Another character was added to this cast: a villanous, gorilla-type, hairy doll, two feet tall (three times larger than the other characters). These players, therefore, would be well-known to the student audience; they would act out their filmic performance as if they had life-like properties through the technique of animation.

A 16mm Bolex reflex camera was used to film the dolls, which were secured on a desk top with masking tape. A single-frame exposure technique was used with the Bolex: the shutter was released twice and two frames were made of the given scene. The tape was then removed from the doll's feet; the doll was moved a fraction of an inch, and secured again in its new position. Another two frames were exposed, and the movement was repeated until all the shots of all the sequences in the five scenes were complete. This single-frame exposure technique created a film that offers a projected image with motion; the dolls now seem to have locomotive properties. Two features were included in the film that would facilitate its use in the experimental classrooms: (1) the length was kept to approximately three minutes; and, (2) the film had no sound track.

The Plot

The screen story follows a heroine-villain-hero model. The following synopsis describes the action:

Scene 1. Fade-in. The opening shot of this first scene fades in to Barbie as she is seen walking from screen left to screen right. The camera then cuts to a close-up of the gorilla's face; his eyes are seen "rolling around in his head." The scene ends by fading out on this close-up of the villain. (Fade-out).

Scene 2. Fade-in. The first shot in this scene is a continuation of the fade-out shot in the previous

scene: the gorilla's face is seen close-up with his eyes rolling around. Suddenly, the eyes stop moving and become fixed, directed to the bottom left portion of the screen. Barbie is again seen walking from left to right; she abruptly stops and looks up. The gorilla's face appears again; the eyes look directly at the camera and begin advancing rapidly toward it . . . and the next shot shows Barbie cradled in the gorilla's left arm. The camera cuts to a close-up of the animal's face; his eyes roll around. Suddenly his eyes stop moving and become fixed, directed to the top left of the screen; the scene fades-out on this image. (Fade-out).

Scene 3. Fade-in. The image that appears is the same shot that faded-out in the previous scene: the gorilla's eyes fixed toward the top-left corner of the screen. The next shot shows a close-up of Tarzan swinging down on a rope from left to right; he lands and looks up at the gorilla, and the beast looks down at him. Barbie's face is seen close-up, also looking down upon Tarzan. Tarzan turns his upward stare from the gorilla to Barbie, and as he looks at Barbie he suddenly turns his head and looks toward the top left portion of the screen; the scene fades-out on this image. (Fade-out).

Scene 4. Fade-in. Tarzan is seen again looking up to the top left of the screen; the gorilla and Barbie are also looking in the same direction. The camera cuts to a close-up of Batman as he swings down on a rope from

screen left to right; he lands and looks up at the gorilla; then exchanges glances with Tarzan. The gorilla and Barbie look down upon Batman and Tarzan. Suddenly, Tarzan looks up to screen top left; then Batman looks up to screen top left; and, a close-up of the gorilla's face shows his eyes moving to screen top left. The scene fades out. (Fade-out).

Scene 5. Fade-in. This scene fades-in to the same image that faded-out in the previous scene: the gorilla's eyes fixed, directed toward the top-left portion of the screen. Tarzan is seen looking up in the same direction; Batman is also looking up. Suddenly, from the left side of the screen a close-up shot shows Captain Marvel flying in from left to right; he lands, looks up at the gorilla, and exchanges glances with Batman and Tarzan. The three Super Heroes seem to be having a dialogue of some sort. The gorilla and Barbie are shown looking down upon the Super Heroes. The gorilla's eyes abruptly move toward screen top left; Tarzan, Batman, and Captain Marvel turn and look up also. All the characters look up for several seconds . . . but no one seems to be coming. Suddenly, Mr. Spock "materializes out of thin air" in the midst of the Super Heroes. The Heroes look at Spock and then at each other. Spock looks up at Barbie and the gorilla, and then at the Super Heroes; the gorilla and Barbie look down at all the characters below. Spock suddenly starts moving from left to right; the Super

Heroes begin moving, some right to left, others left to right. And then, a free-for-all ensues among the would be rescuers. The gorilla's eyes are seen darting back and forth at the fight below him, when he suddenly looks up to screen left and the film cuts to black.

(Cut to black: FILM ENDS)*

There are two versions of the film story described above: film version A (Spaced presentation) and film version B (Massed presentation). These two films differ only in one aspect: the length of the fade-outs in film version A is extended (it lasts eight seconds, as opposed to the two-second fades of film version B). The extended fade is used to stop the projector while maintaining the film continuity. When the projector is stopped, the researcher proceeds with the questioning strategies. In film version B (Massed presentation), the questioning occurs after the viewing; the film is not interrupted.

Questioning Strategies

The questioning that occurred within film version A and after film version B was designed to fit the developing action on the screen. Five questions were used (question number four has two parts):

*A graphic representation of the synopsis is shown in Appendix B. Figure 3.1 depicts the structure of the film.

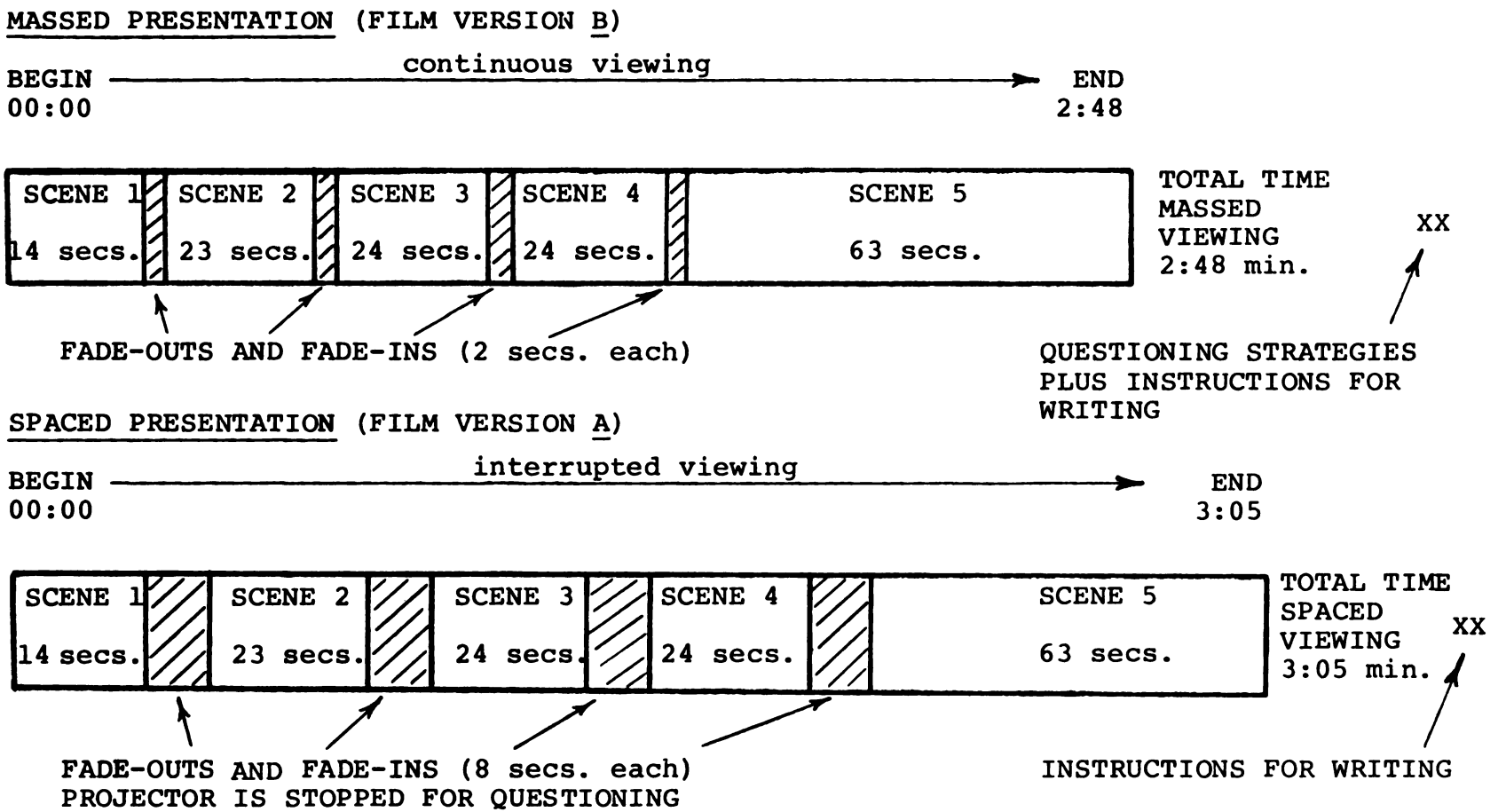


Figure 3.1. Graphic Illustration of Two Film Versions (A and B).

1. Who are the main characters in this movie?
2. What's a good title for this film?
3. What is happening in this movie?
4. What other characters do you think might be coming? Can you think of two words that describe the action in this film?
5. What do you think is going to happen next?

Each of these questions was worded so that it is logical to the development of the story, regardless of whether they are asked within the film or after it. The questions, when asked in the order shown above, can be incorporated as the story develops (the Spaced presentation, or film version A), or when the story suddenly stops after scene five (the Massed presentation, or film version B). During the questioning the students were specifically requested to think carefully about each question, and to not offer an answer out loud. According to Hunkins,[8] there are four possible functions of any questioning strategy: centering, expansion, distribution, and ordering. This study uses the first two questioning strategies, centering and expansion. These two are the most important to convergent and divergent thinking, precisely the type of thought involvement required by the experimental design: the students are asked to consider the developing circumstances in the film and reflect upon their implications through the questions asked by the researcher.

The questioning strategy procedures are explained to the students before the showing of each film. Upon completion of the film viewing and questioning, the students receive specific writing instructions. Please refer to Appendix C for the specific "Instructions to Students and Questioning Strategies" for both film version A and B.

Background to the Pilot Study

Upon completion of the film in the winter of 1976, a trial experiment was conducted in two elementary classrooms in an East Lansing (Michigan) public school. During the showing of film version A in one of the two classrooms the projector was stopped at the designated points and the researcher conducted an informal discussion on what had been seen on the screen. Film version B, shown in the second classroom, was not interrupted; the discussion took place after the viewing. (Note that the experimental design at this point merely included informal discussion between the researcher and the students rather than the questioning strategies of the dissertation study). Both film versions in this first trial were open-ended; the students were given directions to "finish the story in your own words on this sheet of paper." The object of this trial run was to test the functional elements of the design: was the film interesting to the children? was the

film a stimulus to writing? was it possible to stop the projector in version A and hold a discussion? The trial experiment demonstrated that the film was interesting to the students: lively discussion took place when the researcher asked questions, and the students made verbal comments as the film was shown. This trial also showed that the mounting excitement in the audience was transferable to the print medium: all students, in both film versions, picked up paper and pencil and wrote an ending to the story. The trial showed that it was possible to start and stop the projector during the extended fade-outs of film version A.

Some students were briefly disoriented during the first projector stop (i.e., the viewers, not being used to this use of film, were initially confused by the stop). However, the discussion that followed the stop reestablished the continuity of the film + discussion strategy; thereafter, the children expected a film/stop as soon as the screen faded to black.

The conceptual aspects of the design were analyzed during other trial experiments conducted in the months that followed, in different locations and under varied circumstances: with graduate students at Michigan State University, in private screenings with parents and children at home, and in two additional elementary schools (a public school in East Lansing and a parochial school in Lansing). The functional aspects of this form of film

utilization were tested with in-service teachers at the University of Manitoba (Winnipeg, Canada) in the summer of 1976. The teachers responded favorably to the basic idea of stopping a film for teacher/student interaction during the development of the story. Additional trials were conducted in various schools in East Lansing to further clarify the functional and conceptual designs. Two major concerns were brought out during these East Lansing trials: (1) the composition of the school population; and, (2) the lack of experimental control in the use of open-ended discussion as motivation for writing.

The schools in which the trials were conducted in East Lansing had a heterogeneous population. The children that attended these schools came from varied home environments: laborers, university faculty, factory workers, university staff, foreign-born, lower, middle, and upper class. This mixture of student-types made it difficult to obtain two equal populations for purposes of statistical analysis. In addition to the great variety of students, the schools in East Lansing differed in teaching philosophies (i.e., some were traditional with self-contained classrooms, others had an open concept, and still others had a mix of open and traditional styles). It became advantageous, therefore, to seek students from equivalent backgrounds who attend similar institutions.

The numerous and complex design problems concerning film and discussion encountered by Howell[9] were

considered. In order to attain firm scientific control of the study it was decided, therefore, that closed questioning strategies would be used instead of informal discussion. Closed questioning strategies means that questions would be asked of students but verbal responses would not be elicited; children would be asked to think silently about their responses to the questions. In addition, questioning strategies would increase the experimental control of the design by having each child included as a unique statistical unit, whereas free discussion would have required that each classroom be consolidated into one statistical unit (Byers),[10] thereby giving a total N = 8, a number far below N = 100, a minimum figure accepted for experiments dealing with classroom subjects (Busk).[11]

In addition to the previous trials of the experiment, it was determined that a pilot study was needed to include (1) closed questioning strategies, and (2) evaluation of writing results. The pilot would be conducted under strict, experimental controls in order to clarify verbal instructions, questioning strategies, time constraints, and mechanical logistics. An instrument was designed for rating the students' writings based on the holistic-general impression marking method described by Cooper[12] and based upon the rating scale developed by the National Assessment of Educational Progress, Scoring of Writing: zero-to-eight.[13] In addition, Diederich's design for allocating the given sample of papers into percentiles

was used: top quartile (high quality papers), middle half (middle quality papers), and bottom quartile (low quality papers).[14] Mellon's suggestion that the rater use each cateogry (zero-to-eight) a minimum percentage of the time was also incorporated in the study.[15] Reliability of the evaluation instrument was based on Diederich who states that reliability can be increased if essays are graded based upon the rater's first impression. The norm, according to Diederich, is .50; he designates .80, however, as acceptable.[16]

The Pilot Study

Two classrooms were selected from one school in East Lansing to be used in the pilot. Both classrooms had combined fourth-fifth grade structures. One class was exposed to film version A (Spaced presentation), and the other class viewed version B (Massed presentation). A total of forty-two papers were obtained from the combined class. Two doctoral candidates who are qualified teachers in the area of language arts, College of Education, Michigan State University, were trained to rate the papers using a holistic-general impression marking method of evaluation. The pilot papers were ranked by the raters using a zero-to-eight point scale: best papers received eight, poorest writings, zero. The raters each received a duplicate set of papers that excluded the student's name, and each paper was read once before beginning the evaluation procedure.

The raters were then asked to score the papers according to the following scheme. First, they were asked to assign papers to three categories: high quality, middle quality, and low quality, following Diederich's design.[17] Each of these three categories was to have the following totals:

low quality	middle quality	high quality
10 papers	24 papers	10 papers

Beyond the initial breakdown shown above, the raters were instructed to score each paper from zero to eight using Mellon's design.[18] (Refer to Table 3.2).

Table 3.2.--Scoring Distribution of Pilot Papers.

	Score	Number of Papers	
Low quality	0	5	Total low quality: 10
	1	5	
	2	4	
	3	4	
Middle quality	4	4	Total middle quality: 10
	5	4	
	6	4	
	7	5	
High quality	8	5	Total high quality: 10

The two sets of ratings were compared to determine rater reliability. The Pearson Product-Moment Correlation formula was used.[19]

$$r_{xy} = \frac{N\sum_i x_i y_i - (\sum_i x_i)(\sum_i y_i)}{\sqrt{\left[N\sum_i x_i^2 - (\sum_i x_i)^2\right]\left[N\sum_i y_i^2 - (\sum_i y_i)^2\right]}}$$

The formula computation gave an inter-rater reliability of .82 for the pilot study. This reliability coefficient is well within the boundaries set forth by Diederich.[20] After the rating reliability was established, the two raters were asked to meet with the researcher to critique the results.

The evaluation session brought together the two raters to discuss their approach to the grading of the papers, and to determine the reasons for discrepancies in given scores. The two raters and the researcher agreed that during the evaluation of the experimental papers two points should be noted: (1) legibility of writing should not interfere with the quality of the writing; and (2) the use of run-on sentences would not be considered a major fault, if the basic ideas to the story ending were well developed. Each student paper was to be evaluated in relation to all the papers in the study, and three basic questions would be used as criteria for evaluating the writing. In order of decreasing importance the three questions are:

1. Did the student provide a logical ending to the story?

2. How original, interesting, or creative was the ending?
3. How competent was the student in language usage, spelling, punctuation, capitalization, and legibility?

The results of the pilot study showed that nearly all aspects of the experimental design were positive, with only minor adjustments required in instructions to raters and in the researcher's presentation.

The Population Studied

Two schools, both from the same suburban area in the vicinity of Michigan State University, were selected to participate in the study. The two schools were chosen for equivalency of populations: (1) socioeconomic level (middle and upper-middle class, Caucasian, native-born); (2) school philosophy (self-contained classrooms); and, (3) size of school population. The two schools are, respectively, one and two miles from the City of Lansing. This proximity assures that the sample population was included as part of the population in the doll study conducted in 1975 (i.e., the children in the experimental study would be equally responsive to the characters in the film). Additional information on the two schools is offered in Tables 3.3 and 3.4.

Table 3.3.--School District Population.

	Student Population
One (1) high school (9-12)	1,911
Two (2) middle schools (6-8)	2,410
Eight (8) elementary schools (K-5)	1,486
Total School District Population	5,807

Table 3.4.--Experimental School Population.*

	Grade Level						Total Population
	K	1	2	3	4	5	
School A							
Number of classrooms	2	2	2	3	2	2	312
School B							
Number of classrooms	2	3	3	3	3	3	432

*Both schools, A and B, have an equivalent ratio of boys and girls.

During the month of September all fourth graders in Michigan public schools participate in the Michigan Educational Assessment Program (referred to as the "M.E.A.P."), a testing program begun in 1969

> . . . to provide useful information on the extent to which Michigan students have attained a certain MINIMAL performance objectives.[21]

Achievement measures in reading and math are obtained for every fourth grade public school student through M.E.A.P. objective-referenced tests. As a measure of reading achievement, the students respond to written questions by selecting from five multiple-choice responses. There are ninety-five questions in the fourth grade reading test, designed to measure nineteen Reading Objectives.

A useful device in obtaining information concerning the sample population was through a Teacher and Principal Questionnaire (Appendix D). The primary objective of the Principal Questionnaire was to obtain information on the characteristics of the school. The principals in both schools gave comparable answers to the questions asked by the researcher, and the following conclusions were made:

1. Both schools are composed primarily from middle and upper-middle class homes; the families are native-born, Caucasian-Americans.
2. No I.Q. scores are kept on children, but M.E.A.P. scores are recorded in the student's records (these scores were made available to the researcher).

3. Children are placed in classrooms at random, without regard to previous record of school achievement.

The Teacher Questionnaire offered information specific to given classrooms. The researcher interviewed each teacher several days after the experiment was conducted. All classrooms are in a self-contained mode: the children do not change rooms during the school day and are exposed to the same teacher for all major subjects. The teachers responded positively when asked about the methods for teaching writing; all mentioned they did not rely on one language arts textbook, but instead either used supplementary material with the text, or just "writing materials" other than the text (i.e., commercial story-starters, teacher-made materials, etc.). The meaning of writing, though, was not the same to all teachers: some felt it signified creative writing exclusively, others included creative writing plus any other activity that has the student commit pencil to paper (copy work, dictation, penmanship, etc.). The data collected by the Teacher Questionnaire on writing includes, therefore, quite a broad definition of this language arts activity. When writing, students generally are asked to use cursive, although two teachers permit the use of manuscript, and one teacher demands it.

All teachers mentioned that their class was equivalent academically to the others in their grade level.

A wide range of teaching experience was noted among the eight teachers (from one year to twenty years). The teachers rated their classroom, on a one-to-five scale, as being either structured or open. No teacher went to the extreme ends of the scale, but differences in teaching style were noted. The results of the questionnaire appear on Table 3.5.

The Experimental Groups

There are two basic reasons why children from grades four and five were selected for this study: (1) this age group had been exposed to the film characters in 1975, the year the doll study was completed; and, (2) children at this level are beginning to express themselves, through writing, in a more free and complex way. Lundsteen explains:

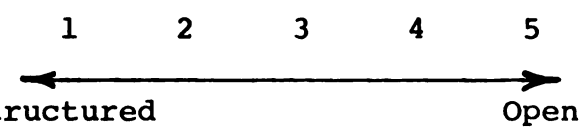
> Sometimes, something important happens between fourth and fifth grades in the development of the child's thought and language process. A deeper sensitivity to experience may develop. A complexity of ideas in fifth grade children's expression may become obvious in their complex sentence structure.[22]

Eight classrooms were randomly selected from the two elementary schools chosen to participate in the study; each of the eight classrooms was randomly assigned to the Treatment Group (Spaced presentation) or to the Control Group (Massed presentation). Out of a total of 185 students participating in the experiment, 171 had scores recorded for the M.E.A.P. reading examination. The records of fourteen subjects did not have the scores listed

Table 3.5.--Teacher Questionnaire Results.

	Classroom Number							
	1	2	3	4	5	6	7	8
Film Use	1/wk.	3/mo.	3/wk.	1/wk.	1/wk.	2/wk.	1/wk.	1/wk.
# Years Teaching	20	10	15	4	1	10	11	7
Writing Activity	45 min. per wk.	1 1/2 hr. per wk.	30 min. per mo.	1 hr. per wk.	45 min. per wk.	1 hr. per wk.	5 hrs. per wk.	1 1/2 hr. per wk.
Classroom structure*	2 1/2	2	2	3 1/2	4	3	***	3 1/2
Writing Style**	C	M	C	C	C	M/C	C	M/C

*The classroom structure is coded as follows:



**Writing style code: C = Cursive M = Manuscript

***This teacher decided not to comment on this issue.

because the child was absent from school on the day the examination was given, or the child had not been enrolled in a Michigan public school.

It was decided to include in the experimental study only those subjects for whom reading scores on the M.E.A.P. were available: first, there is a positive correlation between reading and writing (Hunt,[23] Smith,[24] Heys[25]); second, by having reading scores on all subjects the statistical design would be strengthened. Since the fourteen subjects without M.E.A.P. reading scores were evenly distributed among the eight classrooms, it was deemed worthwhile to suffer a mortality rate of fourteen and exclude these students from the analysis of the data. Table 3.6 portrays which classrooms lost subjects from the above design.

Table 3.6.--Experimental Subjects Lost.

	Room Number	Student Loss	Room Number		
Treatment	1	0	0	5	Control
(Spaced presentation)	2	1	1	6	(Massed presentation)
	3	1	5	7	
	4	4	2	8	
Total Student Loss		6	8	Total Student Loss	

In addition, the loss of fourteen subjects would not adversely affect the total N, which remains at a strong level: 171.

It was decided to compare the student writings by sex. Studies show that girls tend to write higher quality papers than boys (Ewing,[26] Tabachnick and May,[27] and Freden[28]). But the most powerful evidence on the superiority of girls' writing ability is given by the National Assessment of Educational Progress, a project designed to periodically survey the educational achievement of nine-year-olds, thirteen-year-olds, seventeen-year-olds, and adults (ages 26-35). The 1976 National Assessment Report gave the following results:

> At age 9, 14% of the female papers were competent, compared to 6% for the males; at age 13, 37% of the female papers were competent compared to 21% of the male papers; and at age 17, 54% of the female papers were competent, compared to 35% of the male papers.[29]

The basic characteristics of all the experimental subjects in this study are shown on Table 3.7.

Student Writing Evaluation Procedure

There were 171 student pieces to be rated. These were given to the two raters; they followed the same scoring guidelines as for the pilot study. Three initial categories were established:

low quality	middle quality	high quality
42 papers	87 papers	42 papers

Each of these categories was subdivided into nine score groups (zero-to-eight). Table 3.8 shows the subdivision.

Table 3.7.--Experimental Subjects: Treatment, Grade Level, and Sex.

	Room Number	Grade	Males	Females	Total	
Film Version A Spaced Viewing (Treatment)	1	4	7	14	21	
	2	4	11	12	23	
	3	5	11	9	20	
	4	5	12	5	17	
			41	40	81	81
Film Version B Massed Viewing (Control)	5	4	10	12	22	
	6	4	12	12	24	
	7	5	14	7	21	
	8	5	13	10	23	
			49	41	90	90
					TOTAL N	171

Table 3.8.--Scoring Distribution of Experimental Papers.

	Score	Number of Papers	
Low quality	0	21	Total low quality: 42
	1	21	
	2	16	
	3	16	
Middle quality	4	23	Total middle quality: 87
	5	16	
	6	16	
	7	21	
High quality	8	21	Total high quality: 42

The two sets of ratings for these 171 experimental papers were analyzed by the Spearman Rank Correlation Coefficient.[30] The inter-rater reliability for the two raters was found to be .80. This reliability coefficient is within the boundaries set forth by Diederich.[31]

Upon close scrutiny of the ratings of the papers shown in Table 3.8, however, it was feared that this level of evaluation was too "gross" a measure to be functional. Specifically, the objective for giving a zero-to-eight rating to the total group of papers was to establish a rank order from which a statistical analysis would determine if the Spaced presentation (treatment) resulted in higher quality writing than the Massed presentation (control). The statistic to be used was the Mann-Whitney

test for two independent samples.[32] The Mann-Whitney test is designed so that it can incorporate tie scores, but it was determined that the great number of ties resulting from the zero-to-eight scoring would not be amenable to the Mann-Whitney design. It was decided, therefore, that a test for rank differences be conducted using a simpler test: the chi-square for parallel samples.[33] The statistic chosen was the Chi-Square Test for differences in probabilities.[34]

$$T = \frac{1}{\frac{n_1}{N}\left(1 - \frac{n_1}{N}\right)}\left(\sum_{j=1}^{c} \frac{O_{1j}^2}{C_j} - \frac{n_1^2}{N}\right)$$

Setting the alpha level at .05, with 16 degrees of freedom, the value of T needed to reject the null hypothesis and establish the fact that there is a difference between the mean scores of the student papers was 26.30. The value obtained by using the statistic above was T = 18.45, a figure below the required level. It was then determined that a refinement of the initial procedure would be useful. This second evaluation would not alter the data in any way.[35] The two sets of papers were returned, therefore, to the raters in nine packets. Each packet contained a complete scoring category. For example, the packet labeled "zero--rater 1" contained the sixteen papers that rater 1 had evaluated as "zero." The

packet labeled "four--rater 2" contained the twenty-three papers that had been given a score of four by rater 2, etc.

The raters were asked to work on one packet at a time, beginning with the zero packet. Each rater was to rank the papers within each packet, without regard for the contents of the other packets. For example, within packet 3 there were sixteen papers. The raters ranked these sixteen papers in ascending order of writing quality. The lowest quality paper in packet 3 would therefore receive a ranking of zero; the next paper in ascending order of quality would receive a one; the next paper a two; and so on, all the way up to the last paper in packet 3, the sixteenth paper, which would receive a ranking of fifteen. The graphic illustration shown in Figure 3.2 depicts how Rater 1 ranked the papers within packet 3.

When the raters had completed these "within-packet" rankings, the packets were returned to the researcher who performed the following task. The packets from rater 1 were rank-ordered in decreasing value, from packet 8 to packet 0. The papers were then withdrawn from their packet and all papers were rank-ordered from 171 (the highest quality paper) down to one (the lowest quality paper). When the 171 papers from rater 1 were ranked by the researcher, he proceeded to rank the 171 papers from rater 2 in the same manner. Figure 3.3

PERFORMED BY THE RATERS

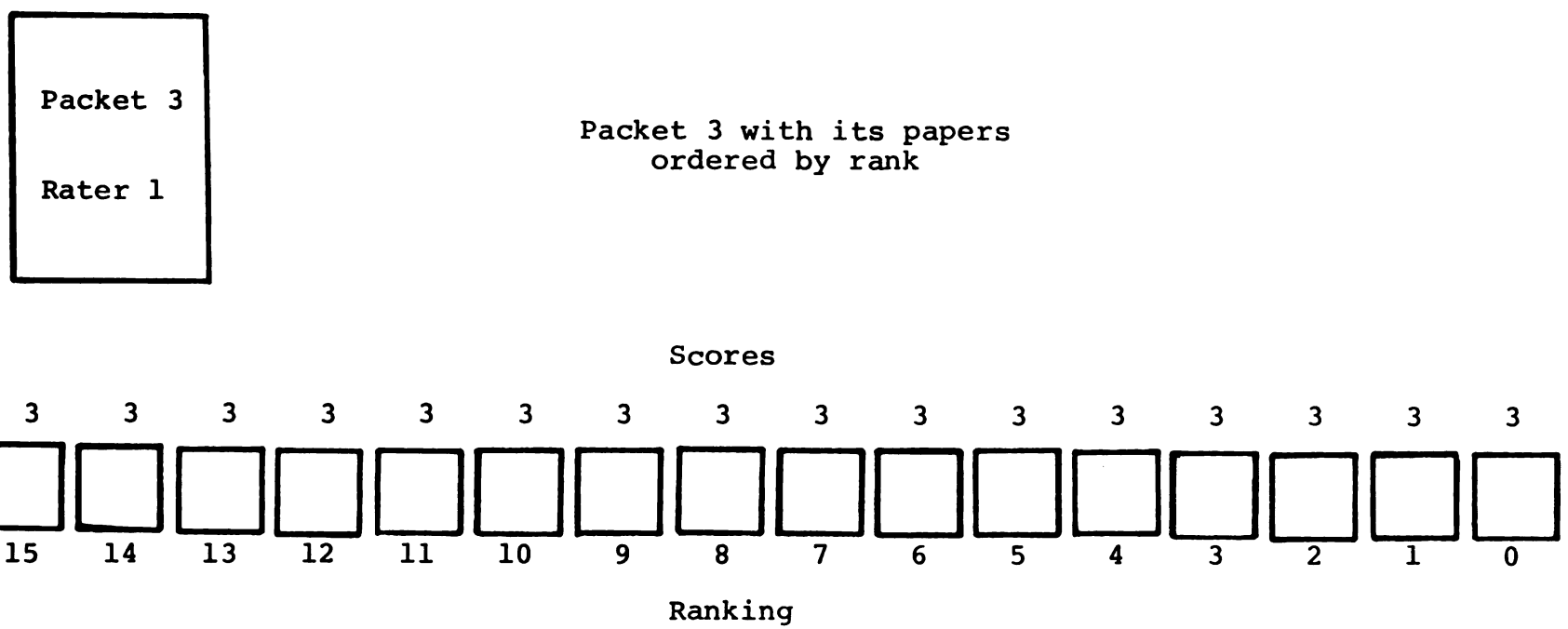


Figure 3.2. Ranking by Rater 1 of Papers in Packet 3.

PERFORMED BY THE RESEARCHER

Graphic illustration of the rankings:

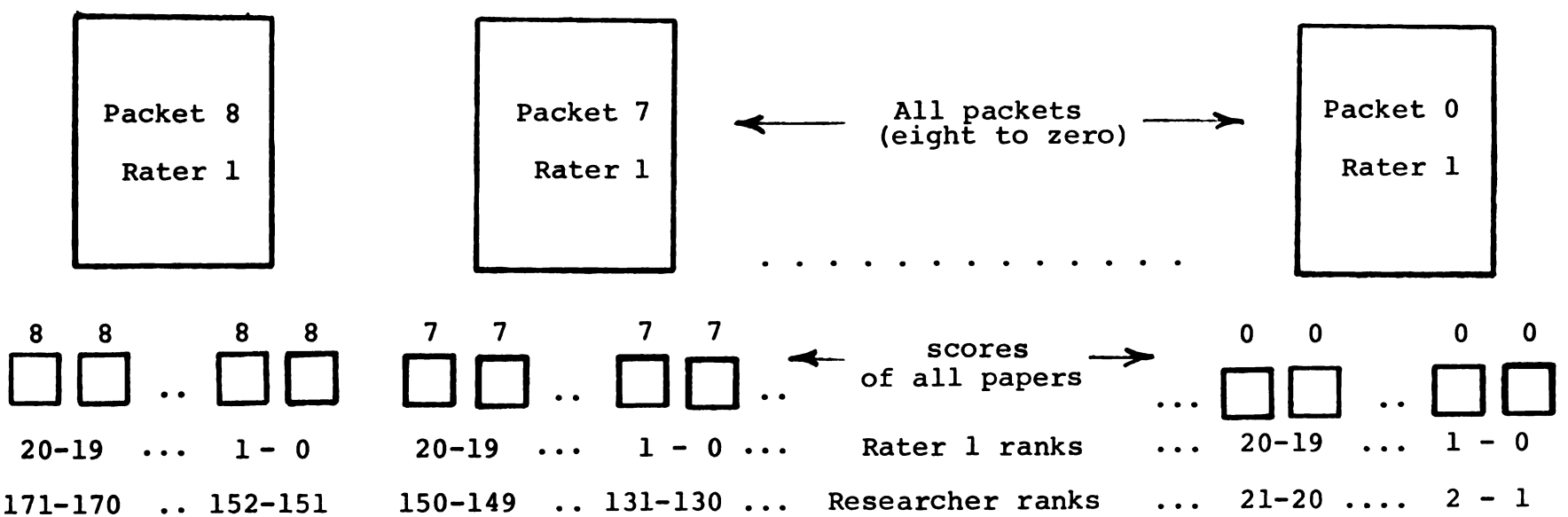


Figure 3.3. Ranking by Researcher of All Papers from Rater 1.

illustrates the ranking procedure followed by the researcher for the papers from rater 1.

This refined evaluation process eliminated the large number of tie scores obtained through the first evaluation. With this new set of rank data the Mann-Whitney test could be used effectively. Samples of student writings appear in Appendix E.

Summary

This chapter included a description of the study's experimental design, including a survey of past events that led to the present design. The characteristics of the film were enumerated; how the film was used when performing the experiment was explained; and a description of the student writing procedures was given including their evaluation by a holistic-general impression marking evaluation instrument.

The population included 171 students, fourth and fifth graders from two elementary schools. Four classrooms of fifth graders and four classrooms of fourth graders were exposed to two different filmic experiences: a Spaced presentation (film version A), the treatment, and a Massed presentation (film version B), the control. At the end of each viewing the classrooms were asked to write an interesting ending to the unfinished film. The student writings from both experimental groups were combined as one set of papers and rated by the holistic evaluation

instrument. The results of this measure were analyzed by the Mann-Whitney test for two independent samples.

A major hypothesis is postulated: mean scores from the holistic evaluation of the papers written after experiencing the Spaced presentation (treatment) will be higher than the mean scores from the holistic evaluation of the papers written after experiencing the Massed presentation (control). Additional research questions considered in the study concern differences between males and females of high and low writing ability (based on the holistic measure), and the correlation between the student writings and the students' scores on the Michigan Educational Assessment Program test for reading.

CHAPTER III NOTES

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[26]Ewing, "Study of the Influence of Stimuli on Written Composition of Selected Third Grade Children."

[27]Robert B. Tabachnick and Frank B. May, "Effects of Three Different Stimuli on the Creativity of Children's Compositions," University of Wisconsin, 1965, ERIC Doc. 003461.

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[34]Ibid., p. 151.

[35]Interview with Dr. Patricia Busk, 6 April 1978.

CHAPTER IV

ANALYSIS OF EXPERIMENTAL RESULTS

In this chapter the results of the experiment are reported and analyzed. The main hypothesis and related research questions were tested by means of the Mann-Whitney test for two independent samples. The alpha level for rejection of the null hypothesis was set at less than or equal to .05. Reading scores of the Michigan Educational Assessment Program were correlated with the holistic scores from both the experimental and the control groups by means of the Spearman Rank Correlation Coefficient. The experimental data is presented in three sections: the Main Hypothesis, Differences by Sex, and Correlations between Reading and Writing.

The Main Hypothesis

Stated in null form, the main hypothesis appears as:

H_o: There is no difference between mean scores on the holistic measure of writing following the Spaced presentation and the mean scores on the holistic measure of writing following the Massed presentation.

H_1: There is a difference between mean scores on the holistic measure of writing following the Spaced presentation and the mean scores on the holistic measure of writing following the Massed presentation.

The hypothesis can be expressed symbolically as:

H_o: $E(X) = E(Y)$

H_1: $E(X) \neq E(Y)$

Differences in Writing by Sex

1. Is there a difference in the holistic scores of males versus females?

   Stated in null hypothesis form:

   H_o: There is no difference between the holistic scores of male subjects and female subjects

   H_1: There is a difference between the holistic scores of male subjects and female subjects

2. Is there a difference in the holistic scores of the Massed presentation: males versus females?

   Stated in null hypothesis form:

   H_o: There is no difference between the holistic scores of male subjects and female subjects in the Massed presentation

   H_1: There is a difference between the holistic scores of male subjects and female subjects in the Massed presentation

3. Is there a difference in the holistic scores of the Spaced presentation: males versus females?

   Stated in null hypothesis form:

   H_o: There is no difference between the holistic scores of male subjects and female subjects in the Spaced presentation

H_1: There is a difference between the holistic scores of male subjects and female subjects in the Spaced presentation

4. Is there a difference in the top quartile holistic scores between males and females in the Massed presentation?

   Stated in null hypothesis form:

   H_o: There is no difference between the top quartile holistic scores of male subjects and female subjects in the Massed presentation

   H_1: There is a difference between the top quartile holistic scores of male subjects and female subjects in the Massed presentation

5. Is there a difference in the top quartile holistic scores between males and females in the Spaced presentation?

   Stated in null hypothesis form:

   H_o: There is no difference between the top quartile holistic scores of male subjects and female subjects in the Spaced presentation

   H_1: There is a difference between the top quartile holistic scores of male subjects and female subjects in the Spaced presentation

6. Is there a difference in the bottom quartile holistic scores between males and females in the Massed presentation?

   Stated in null hypothesis form:

   H_o: There is no difference between the bottom quartile holistic scores of male subjects and female subjects in the Massed presentation

   H_1: There is a difference between the bottom quartile holistic scores of male subjects and female subjects in the Massed presentation

7. Is there a difference in the bottom quartile holistic scores between males and females in the Spaced presentation

   Stated in null hypothesis form:

   H_o: There is no difference between the bottom quartile holistic scores of male subjects and female subjects in the Spaced presentation

   H_1: There is a difference between the bottom quartile holistic scores of male subjects and female subjects in the Spaced presentation

Correlations between Reading and Writing

1. Is there a correlation between the Michigan Educational Assessment Program reading scores and the holistic scores?

2. Is there a correlation between the Michigan Educational Assessment Program reading scores and the holistic scores of students in the Spaced presentation?

3. Is there a correlation between the Michigan Educational Assessment Program reading scores and the holistic scores of students in the Massed presentation?

Analysis of the Main Hypothesis

The statistical measure of the children's writing ability was performed by the Mann-Whitney test for two independent samples. The two samples were the experimental group's papers (the Spaced presentation), which contained 81 subjects, and the control group's papers (the Massed presentation), which contained 90 subjects; the total N, therefore, was 171, a figure composed of both experimental and control group papers. Both samples were rank-ordered from one (1), the lowest quality paper, to one-hundred seventy-one (171), the highest quality paper. Two

professional raters performed the evaluation of the papers: Rater One (R1) and Rater Two (R2). Refer to Appendix G for a graphic representation of the ranking procedure.

The reliability between the two raters was established by the Spearman Rank Correlation Coefficient. The inter-rater reliability was found to be .80, considered acceptable by Diederich.[1]

The Mann-Whitney test was used to analyze the complete set of papers to determine if there is a statistical difference between the two samples. The Mann-Whitney yields a statistical measure known as U. This figure is comparable to the t or F values obtained from other formulas. The scores from both Rater 1 and Rater 2 were analyzed by the Mann-Whitney test for two independent samples; each rater's results are reported independently. The results of the Mann-Whitney showed that R1 rankings were significantly different (i.e., the rankings for the treatment group differed from the rankings for the control group). R2 rankings were also found to be different. The rank mean of R1 scores in the Spaced presentation is 76.7 and in the Massed presentation 94.4. Rater 2 results showed a rank mean of 74.1 for the Spaced presentation and 96.7 for the Massed presentation. The alpha value was predetermined to be set at the .05 level of significance. The Mann-Whitney, when applied to R1 rankings, yielded a U value of .02. When applied to R2 rankings the Mann-Whitney yielded a U value of .01. Both of these U values

are considerably less than the predetermined alpha level of .05. Both raters' results show a significant difference between the control and the experimental papers (i.e., a statistical value capable of rejecting the null hypothesis). It is possible to say, therefore, that yes, there is a difference between mean scores on the holistic measure of writing following the Spaced presentation and the mean scores on the holistic measure of writing following the Massed presentation. Table 4.1 shows the pertinent information on these results.

Table 4.1.--Difference in Holistic Scores: Massed Presentation versus Spaced Presentation.

Rater	Variable	Group	N	Rank Mean	Significance (U)
1	Spaced Presentation	Experimental	81	76.7	.0197
	Massed Presentation	Control	90	94.4	
2	Spaced Presentation	Experimental	81	74.1	.0029
	Massed Presentation	Control	90	96.7	

Reject H_o if U is less than or equal to .05.

Both R1 and R2 show U to be less than .05. The null hypothesis is rejected.

Analysis of Differences by Sex

1. Is there a difference in the holistic scores of males versus females?

   Stated in null hypothesis form:

   H_o: There is no difference between the holistic scores of male subjects and female subjects

   H_1: There is a difference between the holistic scores of male subjects and female subjects

The analysis of the writing performance of males and females in the treatment and control groups resulted in the following. There were ninety males (90) and eighty-one female subjects (81) in the experiment. The student writing evaluated by Rater 1 showed a rank mean of 79.8 for males and 92.9 for females. Rater 2 showed a rank mean of 82.5 for males and 89.9 for females. The Mann-Whitney test showed significance for R1 to be at .08 and for R2 to be at .32. Both of these values are greater than the predetermined alpha of .05. The null hypothesis, therefore, is not rejected; there is no statistical difference in writing between males and females over both treatment groups. Table 4.2 describes these results.

Table 4.2.--Difference in Holistic Scores: Males versus Females.

Rater	Variable	Group	N	Rank Mean	Significance (U)
1	Sex	Males	90	79.8	.08
		Females	81	92.9	
2	Sex	Males	90	82.5	.32
		Females	81	89.9	

Reject H_o if $\underline{U}$ is less than or equal to .05.

Both R1 and R2 show $\underline{U}$ to be greater than .05. The null hypothesis is not rejected.

2. Is there a difference in the holistic scores of the Massed presentation: males versus females?

Stated in null hypothesis form:

H_o: There is no difference between the holistic scores of male subjects and female subjects in the Massed presentation

H_1: There is a difference between the holistic scores of male subjects and female subjects in the Massed presentation

This related research question concerns the control groups (i.e., those that experienced the Massed presentation). There were forty-nine male subjects and forty-one female subjects in the Massed presentation. The results of Rater 1 writing evaluation showed a rank mean score of 44.0 for males and 47.3 for females. Rater 2 writing evaluation showed a rank mean score for males of 45.9 and for females of 45.0. The Mann-Whitney statistic showed R1

to be significant at .56 and R2 to be significant at .86. Both of these values are greater than the predetermined alpha level of .05 and it can be stated, therefore, that there is no statistical difference between the holistic scores of males and the holistic scores of females in the control group (i.e., the Massed presentation). Table 4.3 shows the results of this analysis.

Table 4.3.--Difference in the Holistic Scores of the Massed Presentation: Males versus Females.

Rater	Variable	Group	N	Rank Mean	Significance (U)
1	Massed Presentation by Sex	Males	49	44.0	.56
		Females	41	47.3	
1	Massed Presentation by Sex	Males	49	45.9	.86
		Females	41	45.0	

Reject H_o if $\underline{U}$ is less than or equal to .05.

Both R1 and R2 show $\underline{U}$ to be greater than .05. The null hypothesis is not rejected.

3. Is there a difference in the holistic scores of the Spaced presentation: males versus females?

   Stated in null hypothesis form:

   H_o: There is no difference between the holistic scores of male subjects and female subjects in the Spaced presentation

   H_1: There is a difference between the holistic scores of male subjects and female subjects in the Spaced presentation

This research question concerns the experimental groups (i.e., those groups that experienced the Spaced presentation). There were forty-one male subjects and forty female subjects in the Spaced presentation. The results of Rater 1 writing evaluation showed a rank score of 35.1 for males and 47.0 for females. Rater 2 writing evaluation showed a rank mean score for males of 36.5 and for females of 45.6. The Mann-Whitney statistic showed R1 to be significant at .02 and R2 to be significant at .08. The U value for Rater 1, when compared to the predetermined alpha value of .05, shows a statistical difference; the U value for Rater 2, although very close to the predetermined .05, does not show a statistical difference. R1 results are sufficient to reject the null hypothesis and state that there is a difference between the writing scores of males and females in the Spaced presentation. Refer to Table 4.4 for the numerical data.

4. **Is there a difference in the top quartile holistic scores between males and females in the Massed presentation?**

   Stated in null hypothesis form:

   H_o: There is no difference between the top quartile holistic scores of male subjects and female subjects in the Massed presentation

   H_1: There is a difference between the top quartile holistic scores of male subjects and female subjects in the Massed presentation

This research question concerns those students in the Massed presentation whose holistic scores placed them

Table 4.4.--Difference in the Holistic Scores of the Spaced Presentation: Males versus Females.

Rater	Variable	Group	N	Rank Mean	Significance (U)
1	Spaced Presentation by Sex	Males	41	35.1	.02
		Females	40	47.0	
2	Spaced Presentation by Sex	Males	41	36.5	.08
		Females	40	45.6	

Reject H_o if U is less than or equal to .05.

R1 shows U to be less than .05. The null hypothesis is rejected.

R2 shows U to be slightly greater than .05. The null hypothesis is not rejected.

in the top quartile of the total subjects (N = 171). There were fifteen males and fifteen females who experienced the Massed presentation and scored in the top quartile according to Rater 1; Rater 2 determined that fourteen males and fifteen females belonged in this top quartile. The rank mean score of the subjects evaluated by Rater 1 in this grouping showed a value of 15.6 for males and 15.4 for females; the rank mean scores of subjects evaluated by Rater 2 in this grouping showed a value of 19.2 for males and 11.1 for females. The Mann-Whitney statistic showed R1 to be significant at .95. This value is greater than the predetermined alpha of .05; the null hypothesis is not rejected. The Mann-Whitney statistic showed R2 to be

significant at .01; the null hypothesis, in this case, is rejected. Refer to Table 4.5 for the numerical data.

Table 4.5.--Difference in the Top Quartile Holistic Scores of the Massed Presentation: Males versus Females.

Rater	Variable	Group	N	Rank Mean	Significance (U)
1	Top Quartile Massed Presentation by Sex	Males	15	15.6	.95
		Females	15	15.4	
2	Top Quartile Massed Presentation by Sex	Males	14	19.2	.01
		Females	15	11.1	

Reject H_o if $\underline{U}$ is less than or equal to .05.

R1 shows $\underline{U}$ to be greater than .05. The null hypothesis is not rejected.

R2 shows $\underline{U}$ to be less than .05. The null hypothesis is rejected.

5. Is there a difference in the top quartile holistic scores between males and females in the Spaced presentation?

Stated in null hypothesis form:

H_o: There is no difference between the top quartile holistic scores of male subjects and female subjects in the Spaced presentation

H_1: There is a difference between the top quartile holistic scores of male subjects and female subjects in the Spaced presentation

This research question concerns those students in the Spaced presentation whose holistic scores placed them in the top quartile of the total subjects (N = 171).

Rater 1 determined that four males and eight females belonged in this top group; Rater 2 identified five males and eight females. The rank mean score, according to Rater 1, showed 7.8 for males and 5.9 for females; Rater 2 showed a rank mean score for males of 8.2 and for females of 6.3. The Mann-Whitney statistic showed R1 scores significant at .40 and R2 significant at .38. These two values are both greater than the predetermined alpha of .05, and the null hypothesis, in both cases, is not rejected. Table 4.6 shows the numerical details.

Table 4.6.--Difference in the Top Quartile Holistic Scores of the Spaced Presentation: Males versus Females.

Rater	Variable	Group	N	Rank Mean	Significance (U)
1	Top Quartile Spaced Presentation by Sex	Males	4	7.8	.40
		Females	8	5.9	
2	Top Quartile Spaced Presentation by Sex	Males	5	8.2	.38
		Females	8	6.3	

Reject H_o if $\underline{U}$ is less than or equal to .05.

Both R1 and R2 show $\underline{U}$ to be greater than .05. The null hypothesis is not rejected.

6. Is there a difference in the bottom quartile holistic scores between males and females in the Massed presentation?

Stated in null hypothesis form:

H_o: There is no difference between the bottom quartile holistic scores of male subjects and female subjects in the Massed presentation

H_1: There is a difference between the bottom quartile holistic scores of male subjects and female subjects in the Massed presentation

This research question concerns those students in the Massed presentation whose holistic scores placed them in the bottom quartile of the total subjects (N = 171). Rater 1 identified eleven males and eight females in this group, and Rater 2 identified seven males and six females. The rank mean score of the males identified by Rater 1 was 9.4, and the rank mean score of females was 10.9. The Mann-Whitney test showed a significance for these results at .56. This value is greater than the predetermined alpha of .05; the null hypothesis is not rejected. The rank mean score of the males identified by Rater 2 was 6.4, and the rank mean score of females was 7.7. The Mann-Whitney test showed a significance for these results at .57. This value is greater than the predetermined alpha of .05; the null hypothesis is not rejected. Refer to Table 4.7 for the numerical tabulations.

Table 4.7.--Difference in the Bottom Quartile Holistic Scores of the Massed Presentation: Males versus Females.

Rater	Variable	Group	N	Rank Mean	Significance (U)
1	Bottom Quartile Massed Presentation by Sex	Males	11	9.4	.56
		Females	8	10.9	
2	Bottom Quartile Massed Presentation by Sex	Males	7	6.4	.57
		Females	6	7.7	

Reject H_o if $\underline{U}$ is less than or equal to .05.

Both R1 and R2 show $\underline{U}$ to be greater than .05. The null hypothesis is not rejected.

7. Is there a difference in the bottom quartile holistic scores between males and females in the Spaced presentation?

   Stated in null hypothesis form:

   H_o: There is no difference between the bottom quartile holistic scores of male subjects and female subjects in the Spaced presentation

   H_1: There is a difference between the bottom quartile holistic scores of male subjects and female subjects in the Spaced presentation

This research question concerns those students in the Spaced presentation whose holistic scores placed them in the bottom quartile of the total subjects (N = 171). Rater 1 identified sixteen males and seven females in this group, and Rater 2 identified twenty males and nine females. The rank mean score of the males identified by Rater 1 was 11.1, and the rank mean score of the females

14.1. The Mann-Whitney test showed significance for these figures to be .31. This value is greater than the predetermined alpha of .05; the null hypothesis is not rejected. The rank mean score of the males identified by Rater 2 was 14.9, and the rank mean score of the females was 15.2. The Mann-Whitney test showed significance at the .92 level. This value is greater than the predetermined alpha of .05; the null hypothesis is not rejected. Table 4.8 shows the numerical results.

Table 4.8.--Difference in the Bottom Quartile Holistic Scores of the Spaced Presentation: Males versus Females.

Rater	Variable	Group	N	Rank Mean	Significance (U)
1	Bottom Quartile Spaced Presentation by Sex	Males	16	11.1	.31
		Females	7	14.1	
2	Bottom Quartile Spaced Presentation by Sex	Males	20	14.9	.92
		Females	9	15.2	

Reject H_o if U is less than or equal to .05.

Both R1 and R2 show U to be greater than .05. The null hypothesis is not rejected.

Analysis of Correlations between Reading and Writing

1. Is there a correlation between the Michigan Educational Assessment Program (M.E.A.P.) reading scores and the holistic scores? The Spearman Rank Correlation

Coefficient was the statistic used to answer this research question on reading and writing. R1 showed a correlation of .36, and R2 a correlation of .29. This shows that the two raters were in accord as to the amount of correlation between the reading and writing scores.* Also, it does show a relationship between the M.E.A.P. scores and the holistic scores; it is significant at .001. For the purposes of this study, it can be stated that there is a relationship between the reading and writing scores, a relationship that is statistically significant. Refer to Table 4.9 for the numerical data.

Table 4.9.--Correlation between M.E.A.P. Reading Scores and Holistic Scores.

Variable	N	Correlation	Significance
M.E.A.P. with Rater 1	171	.36	.001
M.E.A.P. with Rater 2	171	.29	.001
Rater 1 with Rater 2	171	.80	.001

2. Is there a correlation between the M.E.A.P. reading scores of students in the Spaced presentation and their holistic scores? The Spearman Rank Correlation Coefficient was the statistic used to answer this research question on reading scores in relation to writing scores

*The correlation between the two raters was .80, with significance established at .001.

within the Spaced presentation. R1 showed a correlation of .34, which was significant at the .001 level. R2 showed a correlation of .28, with significance at .006. The correlation between the two raters was .84, with significance set at .001. These results show that there is a correlation between the reading and writing scores within the Spaced presentation. The relationship is not as strong as the correlation established for all subjects over both the control and experimental treatments. Refer to Table 4.10 for these results in numerical form.

Table 4.10.--Correlation between M.E.A.P. Reading Scores of Students in the Spaced Presentation and Their Holistic Scores.

Variable	N	Correlation	Significance
M.E.A.P. with Rater 1	81	.34	.001
M.E.A.P. with Rater 2	81	.28	.006
Rater 1 with Rater 2	81	.84	.001

3. Is there a correlation between the M.E.A.P. Reading scores of students in the Massed presentation and their holistic scores? Using the Spearman Rank Correlation Coefficient, the relationship between the reading and writing scores was statistically significant. R1 showed a correlation of .31 with significance at .002; R2 showed a correlation of .21, with significance at .026. These

results are not as strong as the correlation for all subjects, reading scores versus writing scores. The correlation between the two raters was .73, with significance at .001. Refer to Table 4.11 for numerical data on these results.

Table 4.11.--Correlation between M.E.A.P. Reading Scores of Students in the Massed Presentation and Their Holistic Scores.

Variable	N	Correlation	Significance
M.E.A.P. with Rater 1	90	.31	.002
M.E.A.P. with Rater 2	90	.21	.026
Rater 1 with Rater 2	90	.73	.001

Summary

The data collected for this study were handled and evaluated in two ways. First, the Mann Whitney test for two independent samples was used to determine differences in writing performance between the control and treatment groups and between males and females. Second, the Spearman Rank Correlation Coefficient was used to measure the relationships between the holistic scores on writing and the reading scores on the Michigan Educational Assessment Program examination.

The main hypothesis tested by the study concerns two ways of using a motion picture in the elementary

school classroom. It was shown by the Mann-Whitney statistic that there is a difference between the experimental presentation (Spaced viewing) and the control presentation (Massed viewing). Two raters, R1 and R2, independently evaluated the two groups of papers; the results from both raters showed a difference between the treatment and the control groups. The rank mean scores of each set of papers from both raters clearly defines which presentation is more effective as stimulus for creative writing:

	Rater 1	Rater 2
Rank Mean Spaced Presentation	76.7	74.1
Rank Mean Massed Presentation	94.4	96.7

The results shown above are contrary to the prediction made in the beginning of the study: stopping a motion picture and involving the viewers in a thinking activity would be a greater stimulus to creative writing than showing the film complete, with the thinking activity occurring after the showing. The results of the main hypothesis appear in Appendix H.

Related research questions showed mostly no difference by sex. There were some instances where sex showed a difference. These results are offered in Appendix H.

The correlation between the reading examination scores of the M.E.A.P. and the holistic evaluation scores

of student writing were all significant at the .05 level. The correlation, however, is not sufficiently strong to merit transference of results to classroom settings other than those in this study. The correlations are shown in Appendix H.

CHAPTER IV NOTES

[1]Diederich, Measuring Growth in English, p. 33.

CHAPTER V

SUMMARY AND CONCLUSIONS

This chapter is presented in six sections. The Summary, Conclusions, and Discussion are followed by Suggestions for Further Research, Implications of the Study, and a Final Word.

Summary

Research on instructional films has diminished since its Golden Age, the years during and immediately following World War II. This is unfortunate because filmic stimuli, through motion pictures and television, has become more influential in society during these intervening decades. Children today, upon entering school, are receptive to film and this predisposition can be used to enhance learning in all school subjects.

The inherent characteristics of film are difficult to define. There is an elusive quality to this medium that creates a total impact on the senses; it is an experience composed of qualities found in other modes of expression such as literature, dance, music, and opera. These characteristics can become natural allies to the language arts. Film, in effect, comprises a complex

arrangement of sensual stimuli that complement the teaching of the five basic language arts skills: listening, speaking, reading, writing, and viewing. The filmmaker, of course, has responsibility to temper these sensual elements so that they suit the desired educational goal. One effective film design that can be used specifically to expand children's awareness of listening, thinking, viewing, and writing includes the following components: student-teacher interaction, an interesting presentation, meaningful content, and a stimulating design.

Characteristics of the Film in this Study

Student-Teacher Interaction. Instructional motion pictures are usually designed to be viewed in one sitting; the projector is turned on and is not stopped until the film ends. With this type of film student-teacher interaction occurs before or after the viewing (i.e., the teacher can engage the class in discussion before the viewing on what the film's content might be; or, the teacher can summarize with the class the film's story after the viewing). But if a film is designed with fade-outs at logical pauses in the developing story, the teacher has the option of incorporating discussion within the viewing by stopping the projector when the screen fades to black. Some authors suggest that any film can be stopped for student-teacher interaction in this manner; the

effectiveness of this procedure is questionable, however, because the interruption of the normal flow of events will disrupt the essence of the film, namely, its continuity. A film not designed to be stopped will suffer from an unnatural disruption of its intended development.

Interesting Presentation. The motion picture created for this study incorporates animation, a filming technique familiar and well-liked by children (it is the technique used in creating television and movie theater cartoons). Animation gives the illusion of locomotion to inanimate objects. In this case, the inanimate objects provided meaningful content to the experimental film.

Meaningful Content. The characters in the film were selected for their familiarity to the experimental student population. A previous study showed that the most popular children's dolls and doll figures in the Lansing area included Barbie, Mr. Spock from Star Trek, and the Super Heroes (Captain Marvel, Batman, and Tarzan); the film's cast included these. A hairy, ape-like figure was added to this group. The plot followed a familiar story line in which a heroine (Barbie), a villain (the ape), and the heroes interact in an exciting, dynamic manner.

Stimulating Design. The experimental film's story was designed to build to a climax and stop; there was no conclusion (i.e., the film would be open-ended). The

children, after the viewing, would be at a peak of excitement. This dynamic instructional situation would lend itself to various resolutions (e.g., creative dramatics, discussion, filmmaking, drawing, etc.). In this study the children were asked to conclude the activity by furnishing their own ending to the story through writing.

Purpose

For the purposes of this study it was hypothesized that if student-teacher interaction occurred within a film viewing, the resulting stimulus for creative writing would be greater than if the same interaction occurred after the film viewing. The study was designed to compare two methods of using a motion picture for stimulating children to write. Specifically, the study compared two questioning strategies using two versions of the same motion picture: in film version A (the Spaced presentation), a questioning strategy occurred within short interruptions during the viewing of the film; in film version B (the Massed presentation), the questioning strategy occurred after the viewing. In both versions the film was open-ended; the story built to a climax and then stopped. Experimental subjects furnished an ending to the story by writing and the results were evaluated by means of a holistic-general impression marking instrument; the writing scores were used to determine the measure of effectiveness of each questioning strategy.

Review of the Literature

A review of the literature, research, and existing motion pictures related to this study was conducted using the following descriptors as guides: Instructional Films, Creative Writing, Writing Evaluation, and Questioning Strategies. Although several studies were located that used elements of this study, no study was found to incorporate all of the descriptors.

The general literature on instructional motion pictures suggests that films are effective stimuli for the teaching of language. Students do show interest when viewing instructional films. Research studies indicate that student participation, either covertly or overtly during film viewing, is an effective instructional technique for factual learning. The potential for student participation films for creative thinking, particularly for creative writing, has not been researched. Research does indicate that the most effective use of a film is dependent upon the expertise of the person showing it, namely, the teacher.

Evaluation of children's writing is an area of concern among educators and researchers. Although no single measure of writing is recognized as sufficient, a holistic-general impression marking method seems to be effective when the instructor wishes a reliable index of student performance in relation to other students in the class.

Design and Methodology

A total population of 171 fourth and fifth grade students viewed two versions of one film. Four classrooms of fifth graders and four classrooms of fourth graders were exposed to two different filmic methods: a Spaced Viewing Presentation (Film version A, the treatment), and a Massed Viewing Presentation (Film version B, the control). At the end of each viewing, the classrooms were asked to write an interesting ending to the unfinished film. The student writings from both experimental groups were combined as one set of papers and rated by a holistic evaluation instrument by two trained raters. The results of this measure were analyzed by the Mann-Whitney test for two independent samples and the Spearman Rank Correlation Coefficient for subgroups of the population under study.

A major hypothesis was postulated:

> Mean scores from the holistic evaluation of the papers written after experiencing the Spaced Viewing Presentation (treatment) will be higher than the mean scores from the holistic evaluation of the papers written after experiencing the Massed Viewing Presentation (control).

Additional research questions considered in the study concerned differences between males and females of high and low writing ability (based on the holistic measure), and the correlation between the student writings and the students' scores on the Michigan Educational Assessment Program test for Reading.

Analysis of Data

The data collected for this study were handled and evaluated in two ways. First, the Mann-Whitney test for two independent samples was used to determine differences in writing performance between the control and treatment groups and between males and females. Second, the Spearman Rank Correlation Coefficient was used to measure the relationships between the holistic scores on writing and the reading scores on the Michigan Educational Assessment Program examination.

The main hypothesis tested by the study concerns two ways of using a motion picture in the elementary school classroom. It was shown by the Mann-Whitney statistic that there is a difference between the experimental presentation (Spaced viewing) and the control presentation (Massed viewing). Two raters, R1 and R2, independently evaluated the two groups of papers; the results from both raters showed a difference between the treatment and the control groups. The rank mean scores of each set of papers from both raters clearly defines which presentation is more effective as stimulus for creative writing:

	Spaced Presentation Rank Mean	Massed Presentation Rank Mean
Rater 1 (sig. .0197)	76.7	94.4
Rater 2 (sig. .0029)	74.1	96.7

The results shown above are contrary to the prediction made at the beginning of the study. It was believed that student-teacher interaction within the viewing would result in higher quality papers. The experiment proved otherwise: viewing the total film and then experiencing student-teacher interaction provided the superior stimulus.

Related research questions showed no statistically significant differences by sex, except in one case.* The results of these seven related research questions appear below.

1. There was no difference in the holistic scores of males versus females. Significance: R1 = .08 R2 = .32

2. There was no difference in the holistic scores of males versus females in the Massed presentation. Significance: R1 = .56 R2 = .86

*3. There was a difference in the holistic scores of males versus females in the Spaced presentation. Significance: R1 = .02 R2 = .08

4. There was no difference in the top quartile holistic scores of males versus females in the Massed presentation. Significance: R1 = .95 R2 = .01

5. There was no difference in the top quartile holistic scores of males versus females in the Spaced presentation. Significance: R1 = .40 R2 = .38

6. There was no difference in the bottom quartile holistic scores of males versus females in the Massed presentation. Significance: R1 = .56 R2 = .57

7. There was no difference in the bottom quartile holistic scores of males versus females in the Spaced presentation. Significance: R1 = .31 R2 = .92

The correlation between the reading examination scores of the M.E.A.P. and the holistic evaluation scores of student writing were all significant at the .05 level:

1. There was a correlation between M.E.A.P. reading scores and holistic scores. Significance: R1 = .001 R2 = .001

2. There was a correlation between M.E.A.P. reading scores and holistic scores of students within the Spaced presentation. Significance: R1 = .001 R2 = .006

3. There was a correlation between M.E.A.P. reading scores and holistic scores of students within the Massed presentation. Significance: R1 = .002 R2 = .026

Conclusions

The study investigated (1) differences in two methods of presenting a motion picture; (2) differences in writing quality by sex; and, (3) correlations between the quality of writing and reading scores on the Michigan Educational Assessment Program. The conclusions reached are given below.

Differences in Methods of Presentation

Stated in null form, the main hypothesis appeared as:

H_o: There is no difference between mean scores on the holistic measure of writing following the Spaced presentation and the mean scores on the holistic measure of writing following the Massed presentation

H_1: There is a difference between mean scores on the holistic measure of writing following the Spaced presentation and the mean scores on the holistic measure of writing following the Massed presentation

Conclusion: There is a difference between mean scores on the holistic measure of writing following the Spaced presentation and the mean scores on the holistic measure of writing following the Massed presentation in favor of the Massed presentation

Differences in Writing by Sex

1. Is there a difference in the holistic scores of males versus females?

   Stated in null hypothesis form:

   H_o: There is no difference between the holistic scores of male subjects and female subjects

   H_1: There is a difference between the holistic scores of male subjects and female subjects

   Conclusion: There is no difference between holistic scores of male subjects and female subjects

2. Is there a difference in the holistic scores of the Massed presentation: males versus females?

   Stated in null hypothesis form:

   H_o: There is no difference between the holistic scores of male subjects and female subjects in the Massed presentation

   H_1: There is a difference between the holistic scores of male subjects and female subjects in the Massed presentation

   Conclusion: There is no difference between holistic scores of male subjects and female subjects in the Massed presentation

3. Is there a difference in the holistic scores of the Spaced presentation: males versus females?

   Stated in null hypothesis form:

   H_o: There is no difference between the holistic scores of male subjects and female subjects in the Spaced presentation

   H_1: There is a difference between the holistic scores of male subjects and female subjects in the Spaced presentation

   Conclusion: There is a difference between the holistic scores of male subjects and female subjects in the Spaced presentation in favor of females

4. Is there a difference in the top quartile holistic scores between males and females in the Massed presentation?

   Stated in null hypothesis form:

   H_o: There is no difference between the top quartile holistic scores of male subjects and female subjects in the Massed presentation

   H_1: There is a difference between the top quartile holistic scores of male subjects and female subjects in the Massed presentation

   Conclusion: There is no difference in the top quartile holistic scores between male subjects and female subjects in the Massed presentation

5. Is there a difference in the top quartile holistic scores between males and females in the Spaced presentation?

   Stated in null hypothesis form:

   H_o: There is no difference between the top quartile holistic scores of male subjects and female subjects in the Massed presentation

   H_1: There is a difference between the top quartile holistic scores of male subjects and female subjects in the Spaced presentation

Conclusion: There is no difference between the top quartile holistic scores of male subjects and female subjects in the Spaced presentation

6. Is there a difference in the bottom quartile holistic scores between males and females in the Massed presentation?

   Stated in null hypothesis form:

   H_o: There is no difference between the bottom quartile holistic scores of male subjects and female subjects in the Massed presentation

   H_1: There is a difference between the bottom quartile holistic scores of male subjects and female subjects in the Massed presentation

   Conclusion: There is no difference between the bottom quartile holistic scores of male subjects and female subjects in the Massed presentation

7. Is there a difference in the bottom quartile holistic scores between males and females in the Spaced presentation?

   Stated in null hypothesis form:

   H_o: There is no difference between the bottom quartile holistic scores of male subjects and female subjects in the Spaced presentation

   H_1: There is a difference between the bottom quartile holistic scores of male subjects and female subjects in the Spaced presentation

   Conclusion: There is no difference between the bottom quartile holistic scores of male subjects and female subjects in the Spaced presentation

Correlations between Reading and Writing

1. Is there a correlation between Michigan Educational Assessment Program reading scores and holistic scores?

Conclusion: There is a correlation between Michigan Educational Assessment Program reading scores and holistic scores.

2. Is there a correlation between Michigan Educational Assessment Program reading scores and holistic scores of students in the Spaced presentation?

   Conclusion: There is a correlation between Michigan Educational Assessment Program reading scores and holistic scores of students in the Spaced presentation.

3. Is there a correlation between Michigan Educational Assessment Program reading scores and holistic scores of students in the Massed presentation?

   Conclusion: There is a correlation between Michigan Educational Assessment Program reading scores and holistic scores of students in the Massed presentation.

Discussion

The analysis of the experimental data by use of the Mann-Whitney test for two independent samples showed a difference between the control and the experimental group. The results, however, were contrary to the main hypothesis of the study. The control group's mean score on the holistic evaluation was greater than the experimental group's mean score. The Massed presentation, therefore, was more effective as stimulus for creating writing than the Spaced presentation. There may be an answer to these contradictory results.

The philosophy underlying the study includes an experiential approach to language learning based on the

interrelationship of the skills listening, speaking, reading, writing, and viewing. Integral to this approach is the key role of the teacher:

> The great teacher is an artist in presenting his view of the world to his students and in moving them to think and feel deeply about their existence and their relationship to the world about them. He creates in the media of language, mime, sound, and picture to effect a response to the world in other persons. As an artist, the teacher must master the crafts of his art. For him this means "mastery of language, of the visual arts, of stage setting, of movement and of the flow of events."[1]

The teacher's role in the final experiment, however, was less prismatic; the researcher's actions were purposely restricted as a means of tightening statistical control. The complexity inherent in studies that include free discussion with motion pictures was demonstrated by Howell.[2] In this study, therefore, free discussion was replaced by controlled teacher questions which were answered silently, to themselves, by the children (i.e., participation from students was done covertly through critical thinking). This experimental design contrasts the free discussion ideas of various authors. Moffett,[3] for example, believes that teachers should be encouraged to design classroom settings in which talk and discussion stimulate children to write. That necessarily involves a loose classroom organization, not easily researched. Nonetheless, it was felt that questioning strategies alone (that is, covert responses from the students through critical thinking) would be stimuli comparable to free

discussion for purposes of the experiment; the inherent power of student-teacher interaction within a motion picture would be demonstrated by either discussion or by teacher-directed questioning strategies.

This was not to be the case, however. Although both experimental groups were subjected to the same questions, the children in the Spaced presentation were at a disadvantage. The problem lies in the lack of continuity. The continuity of a motion picture (that is, the smooth flow of images) is generally unnoticed by the viewer. When the continuity is disrupted--by a faulty projector, inadequate filming with the camera, amateurish editing, or classroom disruptions--the viewer is immediately aware that something is wrong. There is an emotional involvement with film that can be easily interrupted by any number of problems. When the viewer becomes uninvolved with the screen images, it is similar to reading from a text and not comprehending or assimilating its contents due to the reader's disinterest.

The transition from screen to live action in the Spaced presentation disrupted the film continuity. This need not, by itself, cause an insurmountable problem. Continuity can be reestablished in the live action mode; the film can be integrated into student-teacher interaction. But this integration, as the researcher discovered, will not happen through questioning strategies. The give-and-take of free discussion is needed to

establish the link between the screen stimulus and the live stimulus. By not having access to free discussion, the researcher was not able to guide the class along interesting paths of inquiry that related directly to the screen presentation just witnessed. A study related to this problem of continuity was conducted by Andrews.[4] He investigated the effects on factual learning of film interruptions. Andrews found that short interruptions (less than three minutes each) were significant, and lessened factual recall. This researcher believes that an interruption can be used as a superior stimulus <u>if</u> the continuity of the motion picture is maintained through student-teacher dialogue during the time the projector is off.

The study also investigated seven questions concerning differences by sex. In general, no differences were found in the writing quality of boys and girls. Within the Spaced presentation, however, significance was found: Rater 1 showed significance at .02, a level adequate to reject the null; Rater 2 showed significance at .08, not quite sufficient to reject the null at the predetermined level of .05, but sufficiently close to be considered. The conclusion: within a Spaced viewing presentation of the study's film, girls seem to perform in writing at a higher level than boys. This conclusion is at variance with Andrews' finding.[5] His study concerned the possible adverse effects of interruptions on the effectiveness of

film. He found that girls were more adversely affected by interruptions than boys (i.e., girls learned less, as measured by factual recall, than boys).

A last area of investigation in this study concerned correlations between reading and writing. Three correlations were determined: (1) the relationship between reading and writing, overall; (2) the relationship between reading and writing within the Spaced presentation; and, (3) the relationship between reading and writing within the Massed presentation. The correlation between reading and writing overall was .37, significant at the .001 level. This means that, overall, students that scored high on the Michigan Educational Assessment Program reading examination tended to score high on the holistic evaluation of writing; students that scored in the middle range of the M.E.A.P. reading exam scored in the middle range on the holistic evaluation; and, students that scored low on the M.E.A.P. reading exam also scored low on the holistic evaluation. The same results occurred when the data were analyzed within the Spaced presentation and within the Massed presentation; the significance was slightly less for the Spaced presentation than for the Massed presentation, but in all three cases there was significance at the .05 level. The positive correlation between measures of reading and writing corroborate Smith's[6] findings, and agree with comments on the relationship between reading and writing made by Hunt,[7] Blau,[8] and Sheeley.[9]

Implications of the Study

The results of this study should be considered by filmmakers, who will hopefully accept the following suggestions:

1. More films are needed in the affective domain as stimuli for critical thinking.
2. During pre-production planning filmmakers should consider how content and method of visual presentation will affect the student viewers.
3. Post-production analysis should be conducted to answer the question: how do specific films affect children?
4. Open-ended films, designed to stimulate oral and written composition, should be produced and tested.
5. Spaced viewing techniques that can incorporate the teacher's creative potential during the development of a story should be explored.

The findings of this study suggest that teachers can incorporate the following ideas in a functional and practical manner:

1. Film can be an effective instructional stimulus, especially for critical thinking.
2. Children are adept at learning from films, but a more effective use of this medium would include the teacher's use of well phrased questions.
3. Holistic evaluation can provide an effective and efficient method for rating student writing.

Lastly, researchers should take note of the pressing need to refine the design of practical evaluation instruments of student writing; evaluation instruments are needed that can be used realistically by classroom teachers. In addition to the instruments, the researchers

should investigate the training procedures of raters to increase reliability.

Suggestions for Further Research

The decision to tighten statistical control by using questioning strategies was extreme. Having the experience of this experiment and observing Howell's study's design limitations, this researcher believes that discussion can be included in an experiment such as this one. Howell's[10] study suffered from too many variables, namely, several films compared to several non-film presentations, all conducted by several teachers. Future studies should be designed:

1. to use films that are designed to incorporate extended fade-outs, as the present film does, and that remain artistically intact when shown continuously, such as the one in this study.

2. to apply free discussion techniques, using one researcher for both film versions.

3. to keep a tape recording of the student-researcher discussions for analysis (both qualitative and quantitative).

4. to use a larger number of classrooms than the ones used in this study. By using free discussion, the students within one classroom will be considered one unit. The total N, therefore, will be the total number of classrooms, not the total number of subjects, as in this experiment.

5. to include a third experimental group of students who are exposed to no questioning strategies to verify the value of questioning.

A Final Word

Exactly one hundred years ago, in 1878, E. Muybridge produced what is generally accepted as the first motion picture. Nearly two decades later, in 1896, Thomas Edison perfected Muybridge's design and began marketing the Vitascope, the first motion picture projector to use sprocketed celluloid film. The success of this invention and its implications for education were reflected in Edison's enthusiastic remarks:

> The old way of teaching did all right for the past but we are in a transition period. I intend to do away with books in school.[11]

In fact, Edison predicted that films would someday replace the teacher.[12] His prophecy, however, has not come true; teachers remain the dominant force and books are still the mainstay in the classroom.

Edison and his dreams, and today's education, are two extremes, neither of which will achieve their stated goals: the growth of school children. This study has demonstrated that educational technology and teaching can be modified, combined, and adapted to create a learning experience that is effective as well as enjoyable; the Vitascope and the teacher <u>can</u> be friends.

CHAPTER V NOTES

[1]Smith et al., Language and Thinking in School, p. 345.

[2]Howell, "The Effects of Educational Films on Student Participation in Discussion."

[3]Moffett and Wagner, Student-Centered Language Arts and Reading.

[4]Charles R. Andrews, "The Effect of Short-Term Interruptions Upon Factual Acquisition from Motion Picture Films Among Intermediate Elementary School Pupils," The University of Oklahoma, 1972; in A-V Communications Review 20 (Washington, D.C.: AECT, 1972):348.

[5]Ibid.

[6]Helen K. Smith, "Identification of Factors that Inhibit Progress in Reading," in Interpreting Language Arts Research for the Teacher by Harold G. Shane, James Walden, Ronald Green (Washington, D.C.: NEA, Association for Supervision and Curriculum Development, 1971), p. 91.

[7]Hunt, "Recent Measures in Syntactic Development," pp. 67-68.

[8]Harold Blau, "Written Composition and Oral Discourse," English Journal 57 (March 1968):369-71; in Interpreting Language Arts Research for the Teacher by Shane et al., p. 86.

[9]Stuart L. Sheeley, "Tape Recorders and Writing: Innovation in Indianapolis," English Journal 57 (May 1968): 637-40; in Interpreting Language Arts Research for the Teacher by Shane et al., p. 86.

[10]Howell, "The Effects of Educational Films on Student Participation in Discussion."

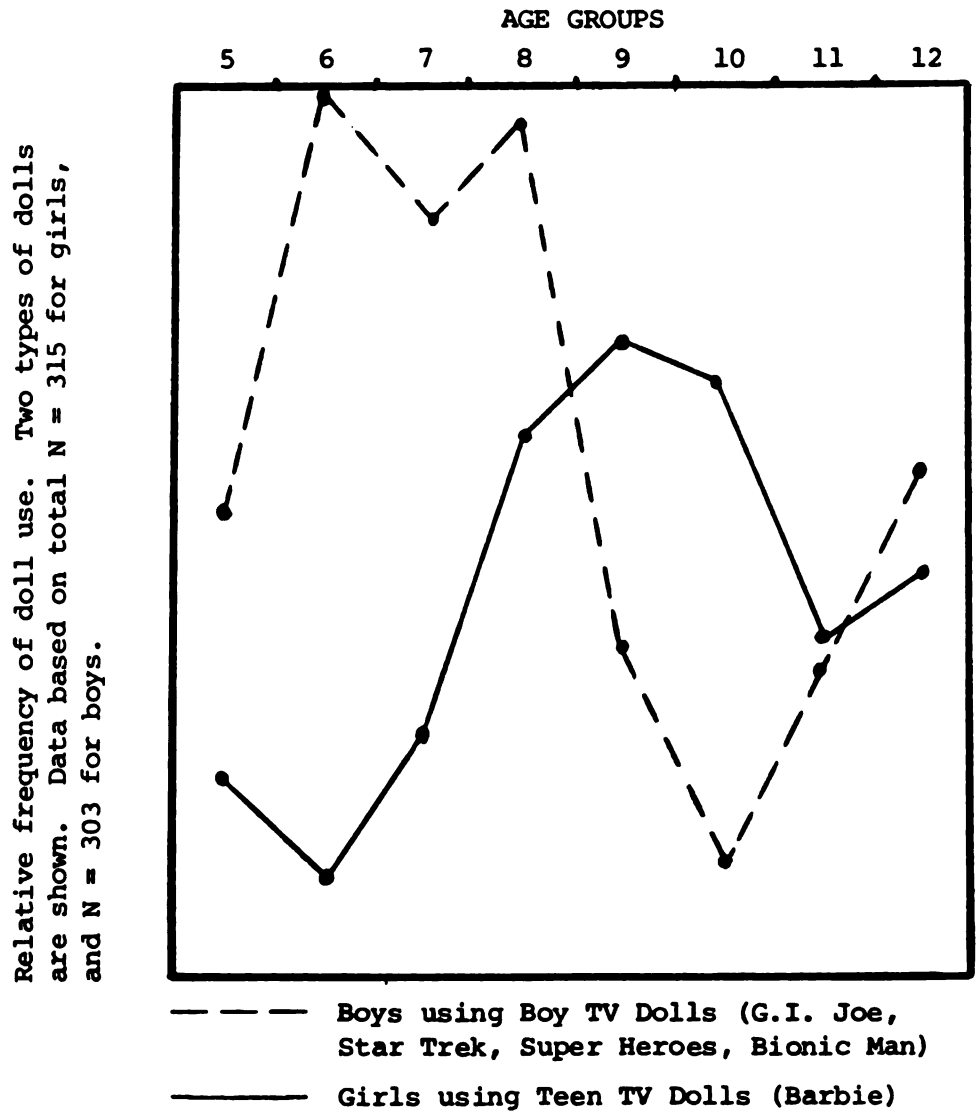
[11]Monard G. Sanford, "Humanizing Technology: Perspectives and Prospectus," AECT address, April 18, 1972, ERIC Doc. ED 062816, p. 8.

[12]Snider, "Selection and Use of Visual Media," p. 127.

APPENDICES

APPENDIX A

RESULTS OF THE DOLL STUDY



The graph shown above illustrates the incidence of use, by age, of the two most popular types of dolls, as determined by the 1975 study. Next to the Teen TV Doll, the favorite doll among girls was the traditional Baby Doll; boys overwhelmingly chose the Boy TV Dolls. The incidence of use for all the dolls investigated in the study is shown below.

Type of Doll	Incidence of Use Among Girls	Incidence of Use Among Girls
Teen TV	51%	3%
Girl TV	20%	0%
Baby Doll	26%	6%
Boy TV	3%	91%
	100%	100%

APPENDIX B

SYNOPSIS

The photographs below are enlargements of selected frames from each scene in the movie. They are shown in the order in which they appear on the screen. The running time given is for the Spaced Presentation.

SCENE 1

Running time
min:secs
00:00 ——————————————————————————————→ 00:14

FADE-IN: The Barbie doll is seen walking from screen left to screen right.....

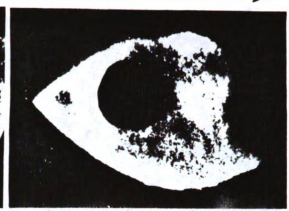
The gorilla is seen close-up and facing the camera; his eyes "roll around in his head." FADE-OUT

SCENE 2

00:22

FADE-IN: The gorilla is seen in the same position as the previous fade-out (his eyes roll).....

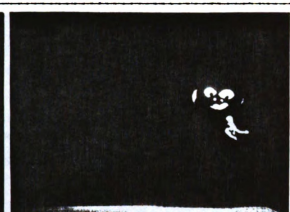
His eyes suddenly "freeze" and become fixed toward screen left.



He advances quickly and.....

00:45

.....picks up the Barbie.



She is seen struggling when.....

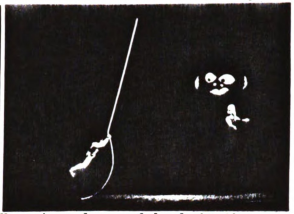
The gorilla's eyes become fixed screen top-right. FADE-OUT

SCENE 3

00:53

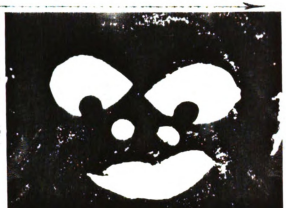
FADE-IN: The gorilla is seen in the same position as in the previous fade-out.

Tarzan appears from screen top-right.



He swings down and lands by the gorilla's feet. The gorilla and Barbie look down at Tarzan.

Tarzan looks up at the gorilla.



The gorilla looks down at Tarzan and.....

01:17

.....the Barbie also looks down at Tarzan.

The gorilla suddenly looks up.

Tarzan turns and looks up too.

FADE-OUT

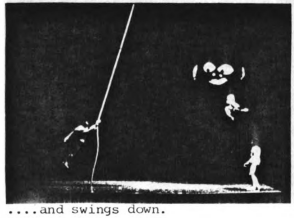
SCENE 4

01:25

FADE-IN: Tarzan is seen in the same position as in the previous fade-out.

The gorilla is also looking.....

Batman appears close-up coming from screen top-right.....



....and swings down.

Tarzan looks at Batman.....

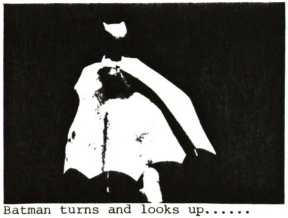
Batman looks at Tarzan

The heroes are looking at each other while Barbie looks down at the heroes.

The gorilla looks down at Tarzan and Batman.

Tarzan suddenly looks up.....

01:49



Batman turns and looks up.....

The gorilla looks up. FADE-OUT

SCENE 5

01:57

FADE-IN: The gorilla is still looking to screen top-right.

Tarzan is looking up.

Batman is looking up.

Captain Marvel appears close-up.

He flies in, lands, and....

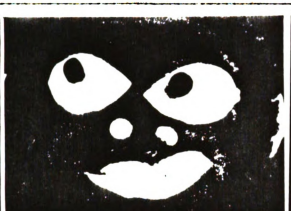
.....looks up at the gorilla.

Batman looks at Captain Marvel.

Tarzan looks at Captain Marvel.

The three heroes look at each other.....

The gorilla and Barbie look down at the heroes.



Suddenly the gorilla's eyes move toward screen top-right.

Tarzan turns and looks up.....

Captain Marvel turns and looks up.

Batman turns and looks up.

Everyone is looking up when suddenly.....

Mr. Spock appears on the scene.

Mr. Spock looks at the camera.

The gorilla looks down at Spock.

Batman looks at Mr. Spock.

All the Super Heroes look at Mr. Spock.

Mr. Spock looks at the Super Heroes.

Tarzan turns his head.....

Captain Marvel turns his head.....

Spock raises his arm and begins to move from left to right.....

Spock attacks Batman.
Captain Marvel flies into Tarzan.
Spock punches Batman.

03:05

An all-out fight takes place.

The gorilla looks down at the melee when suddenly.....

....he looks up screen top-right.

CUT TO BLACK
FILM ENDS.

APPENDIX C

INSTRUCTIONS TO STUDENTS AND QUESTIONING STRATEGIES

INSTRUCTIONS TO STUDENTS AND QUESTIONING STRATEGY

FILM VERSION A--SPACED PRESENTATION

After the projector has been threaded and the researcher introduced to the class, the researcher addresses the students:

I am going to show you a silent motion picture today. There is no end to this film yet. I'll be stopping the projector four times to ask you questions about what you see on the screen. I don't want an answer to the questions--keep the answers to yourself. Just think carefully about the questions.

The researcher then follows the procedure below:

(turn on projector)

——————— The Film Begins ———————

FADE-IN SCENE 1

FADE-OUT SCENE 1

(stop projector)

Question 1: Who are the main characters in this movie? (After a two-second pause, the question is repeated.)
Who are the main characters in this movie?

(turn on projector)

FADE-IN SCENE 2

FADE-OUT SCENE 2

(stop projector)

Question 2: What's a good title for this film?
(two-second pause)
What's a good title for this film?

(turn on projector)

FADE-IN SCENE 3

FADE-OUT SCENE 3

(stop projector)

Question 3: What is happening in this movie?
(two-second pause)
What is happening in this movie?

(turn on projector)

FADE-IN SCENE 4

FADE-OUT SCENE 4

(stop projector)

Question 4: What other characters do you think might be coming?
(two-second pause)
What other characters do you think might be coming?
(three-second pause)
Can you think of two words that describe the action in this film?
(two-second pause)
Can you think of two words that describe the action in this film?

(turn on projector)

FADE-IN SCENE 5

CUT TO BLACK/END SCENE 5

The Film Ends

(stop projector)

Question 5: What do you think is going to happen next?
(two-second pause)
What do you think is gong to happen next?
(five-second pause)

How many of you have played with these toy figures in the past? Raise your hand if you have.
(the researcher records the number that used the toy figures, and then proceeds with the instructions for writing).

This film has no end yet; we are trying to get ideas from different students on how it should end. Would you please think of an interesting ending to this movie and write it on this sheet of paper? Don't tell anyone how it ends . . . keep it a secret. I'll type all the interesting endings and give you a copy. Please stay in your seats after you finish the story.

At this point the pencils and paper are passed out and the children begin to write.

INSTRUCTIONS TO STUDENTS AND QUESTIONING STRATEGY

FILM VERSION B--MASSED PRESENTATION

After the projector has been threaded and the researcher introduced to the class, the researcher addresses the students:

I am going to show you a silent motion picture today. There is no end to this film yet. I'll be asking you some questions after you see it. I don't want an answer to the questions--keep the answers to yourself. Just think carefully about the questions.

The researcher then follows the procedure below:

(turn on projector)

——————— The Film Begins ———————

FADE-IN SCENE 1

CUT TO BLACK/END SCENE 5

——————— The Film Ends ———————

(stop projector)

The researcher then addresses the class and asks the questions below in the order in which they appear:

Question 1: Who are the main characters in this movie?
(two-second pause)
Who are the main characters in this movie?

(three-second pause)

Question 2: What's a good title for this film?
(two-second pause)
What's a good title for this film?

(three-second pause)

Question 3: What is happening in this movie?
(two-second pause)
What is happening in this movie?

(three-second pause)

Question 4: What other characters do you think might be coming?
(two-second pause)
What other characters do you think might be coming?
(three-second pause)
Can you think of two words that describe the action in this film?
(two-second pause)
Can you think of two words that describe the action in this film?

(three-second pause)

Question 5: What do you think is going to happen next?
(two-second pause)
What do you think is going to happen next?

(five-second pause)

How many of you have played with these toy figures in the past? Raise your hand if you have.
(the researcher records the number that used the toy figures, and then proceeds with the instructions for writing).

This film has no end yet; we are trying to get ideas from different students on how it should end. Would you please think of an interesting ending to this movie and write it on this sheet of paper? Don't tell anyone how it ends . . . keep it a secret. I'll type all the interesting endings and give you a copy. Please stay in your seats after you finish the story.

At this point the pencils and paper are passed out and the children begin to write.

APPENDIX D

TEACHER AND PRINCIPAL QUESTIONNAIRE

TEACHER QUESTIONNAIRE

1. Have any students enrolled (or been transferred to) your Language Arts classroom since the beginning of the school year?

   Would you identify them, please?
   How long have they been in your classroom?
   Have you been the regular Language Arts teacher since the beginning of the year?

2. Do your students shift from room to room during the day, or do they remain in one room?

3. How often do your students view motion pictures in their classroom?
   Do you incorporate films in the teaching of the Language Arts?
   Do children make motion pictures?

4. Do you have a subject known as "Language Arts"?
   Is there a room known as the "Language Arts Classroom"?
   Is there a time of day reserved for the teaching of Language Arts?
   How often during the week?

5. Do you use a textbook in Language Arts class?
   What is the name of the text?
   Do you have a textbook used for Writing?
   Do you use other materials for Language Arts?

6. Is there a scheduled time when children are taught Writing?
   What might be an average amount of time that they write?
   What kinds of experiences do you include in your writing lessons? (Penmanship, Creative Writing, Outlining, Letters)

7. How do you evaluate your students' writing performance?
   For the children's own work and awareness on a day-to day basis:
      numerical grades (85-90-95-100)
      letter grades (A-B-C)
      written evaluation describing achievement
   For grade reports (report cards to parents, student records)

8. How would you describe your school: one that is Structured, or one that is Open? Your classroom: Structured or Open?

Structured Open

1 2 3 4 5

9. Is it possible for parents to withdraw their children from your school and enroll them in another school in the district?
Do you have any students like these?

10. How long have you been an elementary school teacher?
In what ways were you prepared in college to teach Writing?
In graduate education classes?

11. Did your class participate in any Great Books program this year? Last? Will you this year? How will you prepare for this activity?

12. When your students have a Writing activity, do they use Pen, Pencil?
Do they have a choice?
Do they use Cursive or Manuscript writing?
Do they have a choice? (The study will permit them to use either)
What paper do they use? Color? Width of lines?

13. In relation to other years you've taught, how would you rate this class to others in relation to Writing ability?

Below Average Average Above Average

14. How are students placed in your classroom? By parent/student choice, administrative decision, sex, race, ability?

15. How would you rate your class in relation to the other 4th/5th grade(s) in your school in relation to: (1) general ability; (2) writing ability?

16. Have you participated this year in the Focus program that utilizes open-ended films for affective education? How often? Do the students write after viewing the films?

PRINCIPAL QUESTIONNAIRE

1. How are the students placed in a given classroom?

2. How were the children in the experimental classrooms placed?

	STUDENT/PARENT CHOICE?	SEX?	RACE?
a.			
b.			
c.			
d.			
e.			
f.			

	ABILITY (IQ)?	ADMINISTRATIVE DECISION?	OTHER?
a.			
b.			
c.			
d.			
e.			
f.			

3. How does your school boundary compare with others in your district in relation to the type of student that attends your school?

SOCIOECONOMIC LEVEL

CHILDREN OF PROFESSIONALS

CHILDREN OF BLUE-COLLAR WORKERS

MIDDLE CLASS CHILDREN

LOW-INCOME CHILDREN

UPPER-CLASS

4. Could I get birth dates of students in experiment? Test scores?

APPENDIX E

SAMPLE OF WRITING PAPER

Your Name: Date:

APPENDIX F

STUDENT WRITING SAMPLES: (1) HIGH QUALITY, (2) MIDDLE QUALITY, (3) LOW QUALITY

(1) After they fight one man should be left and I think it should be Tarzan. During the fight King Kong leaves with the girl. Tarzan tracks down King Kong but he is being held by a mad scientist. Tarzan has to get King Kong before the mad scientist makes a whole army of King Kong robots. Tarzan sees the girl and she looks like she is in a trance, and she is. The mad scientist has her feed King Kong, because if he does he will get killed, because King Kong hates everybody except the girl that is in a trance. Tarzan sneaks up on the mad scientist and stabs him with his knife. The mad scientist is dead. Tarzan ruins the computers that the mad scientist had in his lab, and the girl snaps out of her trance. Tarzan tells the girl to get King Kong out of his cage so he can get him back to the island where he belongs. Tarzan tells the girl to wait. He puts wheels on the bottom of the cage so he can roll it to a raft and then get King Kong back to the island where he came from.

Ther was a Big Fight Batman wan He killed Them All But That was not The end He Had Forgotin about King Kong and He steped on Batman But Godzila Was Right Behind King Kong and He Spit King Kong with Fire and killed Him.

The End

(3)

The lade got a wow and the men got a wow.

THE END

APPENDIX G

REPRESENTATION OF STUDENT PAPER RANKINGS

Table G-1. -- Condensed Representation of Student Paper Rankings (Rater 1 and Rater 2).

Rater 1				Rater 2		
Student Paper Code	Ranking	Treatment		Student Paper Code	Ranking	Treatment
A-07-063	171	Spaced	↑ high	C-09-079	171	Spaced
D-10-100	170	Massed		J-16-127	170	Spaced
D-20-188	169	Massed		C-02-019	169	Spaced
C-09-079	168	Spaced		E-12-111	168	Spaced
⋮	⋮	⋮	writing quality	⋮	⋮	⋮
E-11-101	004	Spaced		E-14-131	004	Spaced
I-04-036	003	Massed		I-04-036	003	Massed
B-11-108	002	Massed		B-11-108	002	Massed
B-16-158	001	Massed	↓ low	B-16-158	001	Massed

The Mann-Whitney Test for two independent samples is used to determine if there is a difference between the two samples in each ranking: Spaced Treatment versus Massed Treatment.

APPENDIX H

TABULATION OF EXPERIMENTAL DATA ANALYSES

Table H-1. -- Tabulation of Experimental Data Analysis: Main Hypothesis.

Main Hypothesis		Rank Means		Significance (U)		Status of Null Hypothesis	
		R1	R2	R1	R2	R1	R2
Difference between mean scores on the holistic measure of writing: Spaced vs. Massed Viewing	S	76.7	74.1	.0197	.0029	Reject	Reject
	M	94.4	96.7				

Note: Alpha level set at .05 in all cases.

Table H-2. --Tabulation of Experimental Data Analysis: Related Research Questions.

Related Research Questions		Rank Means		Significance (U)		Status of Null Hypothesis	
		R1	R2	R1	R2	R1	R2
1. Difference between holistic scores: males vs. females	m	79.8	82.5	.08	.32	Not Reject	Not Reject
	f	92.9	89.9				
2. Difference between holistic scores in Massed presentation: males vs. females	m	44.0	45.9	.56	.86	Not Reject	Not Reject
	f	47.3	45.0				
3. Difference between holistic scores in Spaced presentation: males vs. females	m	35.1	36.5	.02	.08	Reject	Not Reject
	f	47.0	45.6				
4. Difference between holistic scores in top quartile of Massed presentation: males vs. females	m	15.6	19.2	.95	.01	Not Reject	Reject
	f	15.4	11.1				
5. Difference between holistic scores in top quartile of Spaced presentation: males vs. females	m	7.8	8.2	.40	.38	Not Reject	Not Reject
	f	5.9	6.3				

Table H-2. -- Continued.

Related Research Questions		Rank Means		Significance (U)		Status of Null Hypothesis	
		R1	R2	R1	R2	R1	R2
6. Difference between holistic scores in bottom quartile of Massed presentation: males vs. females	m	9.4	6.4	.56	.57	Not Reject	Not Reject
	f	10.9	7.7				
7. Difference between holistic scores in bottom quartile of Spaced presentation: males vs. females	m	11.1	14.9	.31	.92	Not Reject	Not Reject
	f	14.1	15.2				

Note: Alpha level set at .05 in all cases.

Table H-3. -- Tabulation of Experimental Data Analysis: Correlation Between Reading and Writing.

	Correlation between Reading and Writing	Correlation		Significance
1.	Correlation between M.E.A.P. reading scores and holistic evaluation of writing scores	M.E.A.P. with Rater 1	.36	.001
		M.E.A.P. with Rater 2	.29	.001
2.	Correlation between M.E.A.P. reading scores and holistic evaluation of writing scores within the Spaced presentation	M.E.A.P. with Rater 1	.34	.001
		M.E.A.P. with Rater 2	.28	.006
3.	Correlation between M.E.A.P. reading scores and holistic evaluation of writing scores within the Massed presentation	M.E.A.P. with Rater 1	.31	.002
		M.E.A.P. with Rater 2	.21	.026

Note: Alpha level set at .05 in all cases.

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