An investigation of children's perceptions of story content as elicited by three modes of presentation: the storyteller, the reader, the sound slide show
by Margaret Kernan Rolando

A thesis submitted in partial fulfillment of the requirements for the degree of Doctor of Education
Montana State University
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Abstract:
This study attempted to determine if three different modes of presenting a Story--Storyteller, book and reader, and sound slide show--represented different information potential by bringing different content to children's attention. Ninety third graders from three elementary schools in Butte, Montana, during spring 1984, were presented in small groups, with one of three presentations of the fairy tale, "The Wild Swans" and administered a paper and pencil instrument to determine their perceptions of three different types of content from the story—affective, inference and factual. This content had emerged from preliminary investigation with students and an adult panel analysis of the story text.

Since there was no existing instrument to determine children's perception of the story content, a crucial preliminary was the instrument development, which (though ancillary to the original intent of the study) became a major portion of the research. As most similar cross-media research has utilized individual presentations with followup interviews for data collection, this paper and pencil instrument, more readily amenable to statistical analysis, proved a novel approach warranting further consideration, especially with different age groups and reading levels.

Results indicated there was no statistically significant difference among the modes in affective content in the foreground of attention, number of and overall inferences and factual recall. There was, no difference in approximately eighty percent of the specific inferences. While no definite conclusions about media differences could be drawn, the research process yielded some relevant observations: there appeared more active student participation with book/reader and sound slide presentations than with the storyteller. The format of the sound slide show illustrations may have influenced those specific questions evidencing response differences. Sound slide show and book/reader presentations may not differ enough to elicit different perceptions, although this bears further investigation.

The following cross-media research is also suggested: further research into the development of suitable paper-pencil instruments; continued investigation into the possible differences in information potential of different media, problem solving fostered, preferences related to learning style, long-term effects, and delineation of specific media attributes.
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STORY CONTENT AS ELICITED BY THREE MODES OF PRESENTATION:
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by
Margaret Kernan Rolando

A thesis submitted in partial fulfillment
of the requirements for the degree
of
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MONTANA STATE UNIVERSITY
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December 1984
APPROVAL

of a thesis submitted by
Margaret Kernan Rolando

This thesis has been read by each member of the thesis committee and has been found to be satisfactory regarding content, English usage, format, citations, bibliographic style, and consistency, and is ready for submission to the College of Graduate Studies.

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Chairperson, Graduate Committee

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Margaret Kerman Rolando
December 5, 1984
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ABSTRACT

This study attempted to determine if three different modes of presenting a story--storyteller, book and reader, and sound slide show--represented different information potential by bringing different content to children's attention. Ninety third graders from three elementary schools in Butte, Montana, during spring 1984, were presented in small groups, with one of three presentations of the fairy tale, "The Wild Swans" and administered a paper and pencil instrument to determine their perceptions of three different types of content from the story--affective, inference and factual. This content had emerged from preliminary investigation with students and an adult panel analysis of the story text.

Since there was no existing instrument to determine children's perception of the story content, a crucial preliminary was the instrument development, which (though ancillary to the original intent of the study) became a major portion of the research. As most similar cross-media research has utilized individual presentations with follow-up interviews for data collection, this paper and pencil instrument, more readily amenable to statistical analysis, proved a novel approach warranting further consideration, especially with different age groups and reading levels.

Results indicated there was no statistically significant difference among the modes in affective content in the foreground of attention, number of and overall inferences and factual recall. There was no difference in approximately eighty percent of the specific inferences. While no definite conclusions about media differences could be drawn, the research process yielded some relevant observations: there appeared more active student participation with book/reader and sound slide presentations than with the storyteller. The format of the sound slide show illustrations may have influenced those specific questions evidencing response differences. Sound slide show and book/reader presentations may not differ enough to elicit different perceptions, although this bears further investigation.

The following cross-media research is also suggested: further research into the development of suitable paper-pencil instruments, continued investigation into the possible differences in information potential of different media, problem solving fostered, preferences related to learning style, long-term effects, and delineation of specific media attributes.
CHAPTER 1

INTRODUCTION

There are indeed few situations in contemporary education which do not incorporate some use of instructional media. The use of these media, whether 16 mm movies, filmstrips, television or audio recordings, is accepted as common practice in most educational endeavors.

The influence of electronic media is even more pervasive apart from formal education. As our world has been revolutionized by increasingly common electronic technologies, they have gradually come to replace many of their nonelectronic counterparts which, superficially, may have fulfilled some of the same ends. For example, the diversion and entertainment of the comic book, through the medium of print and illustration, may be being replaced by the diversion and entertainment of the televised "Saturday morning cartoons." Children were once exposed to nursery rhymes and fairy tales which are part of our oral tradition through the medium of a "storyteller," or a reader with a picture book. Often that individual was one of the child's parents. Now it is not uncommon to find a child who has had only television or movie exposure to fairy tales and folklore. Smardo and Curry (1982) have noted the wide range of presentation media, including video and audio cassettes, cable television, films and other formats, now affects even traditional story hours in public libraries: "In view of the increasing use of (these) media...systematic investigation
of the impact of these methods of story hour presentation upon children is needed" (1982:70). And in the classroom, listening with one's peers to the teacher read a chapter each day must now vie for space with "hands on" computer time and videotaped productions in the crowded school day.

The effectiveness of instructional media in the educational setting has been examined through the last three decades by considerable research. In surveying a number of studies both Schramm (1977) and Olson (1974A) have found the results to be inconclusive. Huston-Stein and Wright (1979), Salomon (1974A) and Olson (1974) have pointed out that these studies may have compared the differing technologies as technologies, rather than comparing their characteristics or the way they represent information. This latter concept was popularized by Marshall McLuhan (1964) who suggested that just as a reliance on print may have affected people's cognitive processing so also may people's basic modes of thinking and their cognitive processing be affected by the representational properties of electronic technology.

If this is the case, the distinction between media as they are used for instructional purposes and as they are used in mass communication (e.g., commercial television) may be artificial. Salomon (1979: 388) suggests that "only after one has learned about the psychological effects of unique, inherent attributes of media qua media can one ask about their utility for instruction." He contends that it is the symbolic, communicational differences of media rather than their technological differences which may make significant differences in learning.
Most media research has not addressed what aspects of the education process are more amenable to certain kinds of media (1977).

Salomon (1972A, 1979) and Olson (1974) have hypothesized that different media represent different "symbol systems," i.e., different organizations of sets of symbols which structure information differently and therefore may represent different information potential. Huston-Stein and Wright (1979) also suggest that some formal features of a medium may be viewed as representing certain mental skills or operations and that a media presentation may supplant a new skill or call upon an existing one, thereby affecting the basic thinking processes.

Researchers Huston-Stein and Wright (1979), Salomon (1979) and Meringoff (1980) have attempted to address this possibility. In comparing the kind of information children derive from different media presentations of a story, Meringoff (1980) found that those children who were presented with a television version had greater recall of actions and a greater reliance on visual content in drawing inferences about the story than did those children who were presented with a reader and picture book version. Conversely, the latter group had a greater recall of story language that eludes visual depiction and a greater use of textual content and more outside story knowledge as a basis for their inferences.

Gardner (1980) has cited research stemming from the same Project Zero research at Harvard which supported Meringoff's study in which children were similarly presented with book and reader presentations and film presentations. The findings of these studies corroborated
Meringoff's: the children exposed to the book version remembered much more of the story on their own and were better able to recall information when they were cued. The book children were also able to recall the precise wording and figures of speech, whereas the television children tended to paraphrase the verbal information. Children from both groups made inferences about the story and reached the same conclusions, but the line of reasoning they used was different: the television children were likely to depend on what they saw, rarely going beyond the visual information, whereas the book children were likely to draw on their own or real world experience in making inferences. There were also notable differences in the children's conception of time and space.

Most of the research has examined what Schramm (1977) has referred to as the "big media," e.g., instructional television, 16 mm movies, computer assisted instruction, those media which represent more sophisticated technology, and concomitantly, a greater expense to the educational consumer. There have been few studies dealing with what Schramm referred to as the "little media," e.g., filmstrips, slides, audio recordings. Yet these media are used extensively throughout education.

While there have been studies comparing attitude changes elicited by various media presentations, e.g., Croft et al. (1969), and while, as Huston-Stein and Wright (1979) have pointed out, there has been considerable research on the socializing aspects of mass media television, there have been few, if any, studies that have attempted to directly determine the effectiveness of different media in transmitting emotional or affective content.
The following, therefore, is the background upon which this study is based: different media may represent different information potential which may, with repeated, continual exposure, affect basic modes of thinking and cognitive processing. These media which transmit information may be print, television, radio, movies, filmstrips, or people. For example, both a storyteller and a reader with a picture book are examples of media possessing particular attributes through which information may be transmitted. Audiovisual media are commonplace in many educational settings and have, in some cases, replaced reliance on more traditional media such as print or live presentation. While research has attempted to determine whether or not audiovisual media is effective in teaching, there has been little research on determining what, if any, potential for psychological effect, whether on information processing, problem solving or affective responses, different media presentations might have. It is possible, as Marshall McLuhan (1964) has stated, that the medium is the message: that is, the medium through which information is conveyed may be more influential than the actual content that is transmitted. However, as Salomon (1974A:393-394) has noted, this hypothesis has received little actual investigation: "When roughly the same idea is represented in two different symbol systems, is the same meaning obtained from the messages? There are no clear research findings on this point."

Furthermore, most media research has focused on the "big media" such as movies and instructional television. There has been little on the simpler media such as filmstrips and slides. Yet these media presentations are commonplace in schools and many commercially produced
versions of stories, fairy tales and folktales are now available. For example, the Caldecott Medal books which are chosen annually as the best illustrated children's picture books published in the United States (Arbuthnot and Sutherland, 1972) have been made into a sound flimstrip series by the Weston Woods Company of Weston, Connecticut. If these various media do represent different information potential, then it might be hypothesized that such different presentations might elicit qualitatively different responses from the viewers, and that different information may be being brought to the foreground of the audience's attention.

For example, both Shannon (1979) and Ross (1980) suggest that storytelling is a medium characterized by its richness in immediate participation and personal contact. It might be hypothesized that personal contact is a salient attribute characteristic of that medium, and as such, it might be an effective transmitter of affective content. The determination of such attributes and the concomitant coding of the information they transmit could be valuable to educational theory and to the practical use of the various media.

Statement of the Problem

In consideration of the preceding discussion, this researcher has investigated whether or not different kinds of content, i.e., affective versus nonaffective, number of and specific inferences, and factual content, are brought to the foreground of third grade children's attention by three media used in public school language arts and library programs—sound slide show, book and reader, and storyteller.
The types of content were operationally defined and emerged from an adult analysis of the story. Instrumentation to measure children's perceptions of salient content was developed by this researcher and verified by a regional language arts expert.

The three media represented what Schramm (1977) has characterized as the less elaborate or simpler forms of media which have received little investigative study. One of these mediums, the sound slide presentation, approximated the filmstrip version of a storybook presentation, a format now used in library and language arts programs. Additionally, the review of the literature indicated little or no research into the transmission of affective content by these media. Both practically and theoretically it was considered valuable to determine if these media forms of a story brought to the participants' attention the same type of content.

**Need for the Study**

The need for this study originated in the indications of media researchers such as Salomon (1974A, 1979), Olson (1979), Huston-Stein and Wright (1979), and Gardner (1980), who have suggested that media research has produced inconclusive results because it has not focused on comparing different attributes which may code information differently and represent different information potential. This study attempted to compare three media (sound slide show, book and reader, and storyteller) on the attribute of type of content each medium brings to the foreground of attention. Specific types of content included affective and nonaffective, inferences and factual content.
This study attempted to deal with rather narrow and specific aspects of a more general and theoretical problem described by Salomon (1979). He suggested that research into the educational effectiveness of media is inappropriate until the psychological effects of the characteristic attributes and representational qualities of media can be determined. This consideration would seem to be important since audiovisual media presentations are used in education and now cover the gamut of the curriculum including story and literature presentations which often transmit values and/or affective content. Furthermore, as Allen (1980) has pointed out, in spite of the use of media in the schools, actual media education, i.e., the development of media literacy skills, has actually declined.

While this study has not dealt directly with the construct of symbol systems, it has been theoretically based in part on the recognition that researchers such as Olson (1974) have stated, i.e., that educational and psychological theory are limited by the lack of a theory of the structures pervading our environment and the cognitive consequences of being exposed to those symbols and their transmitting media.

Directly related to this study was Meringoff’s (1980) suggestion that if a given medium brings specific kinds of story content to the foreground of a child's attention (for example, affective or action), then with repeated exposure to that medium the child may accumulate experience with that kind of information and may come to use and prefer it to other kinds.
Ancillary to these considerations was a problem that Schramm (1977) has pointed out: there has been little research on the simpler media such as filmstrips and slides, which are nonetheless in prevalent use in education. This study has focused on three of the simpler media forms—sound slide show, book and reader, and storyteller—which may be found in education, particularly in language arts and library settings.

Additionally, this study has used two approaches to media research not used conjunctively in previous cross-media studies: the use of a paper and pencil instrument for data collection and the use of small groups of subjects for the presentations. Meringoff's study (1978), for example, used individualized presentations and an interview technique for data collection. Smardo and Curry's investigation (1982) into the effectiveness of different story hour presentations on preschool children's receptive language has more nearly approached the kind of story setting that would be used in schools and libraries, specifically presentations made to groups of children. The feasibility of actually using groups of children in a normal school setting with a paper and pencil, readily administered instrument, has not previously been investigated.

**Purpose of the Study**

This study attempted to investigate whether or not there were differences in third grade children's perceptions of story content that was brought to the foreground of attention by three modes of presentation: a sound slide presentation (comparable to a filmstrip), a reader and picture book presentation, and a storyteller presentation.
The types of content included "affective" and "nonaffective" as operationally defined, emerging from an analysis of the text of the story. Instrumentation to determine which type of content was brought to the foreground of attention was developed by the researcher and has been delineated in the methodology section of Chapter Three, which describes the preliminary research that was done prior to this study.

Questions to be Answered

This study attempted to answer the following questions:

1. What are the findings of media research in the last three decades relevant to understanding the effect of media on information potential and cognitive processes?

2. Does each of these kinds of media, a sound slide presentation, a reader and picture book presentation, and a storyteller presentation, bring to the foreground of children's attention different types of content?
   a) Do children perceive affective or nonaffective content to be salient in each of these presentations?
   b) Do children viewing these different presentations make quantitatively and specifically the same inferences about content in the story?
   c) Is children's recall of factual content the same for each type of presentation?
General Procedures

The following general procedures were used in this study:

1. The researcher conducted a review of the research relevant to understanding the effect of different forms of media on information potential. Interdisciplinary research, specifically on children's language development and the structural significance of stories, also was included. This background was used in developing the theory, justification and research design for this study.

2. The fairy tale, The Wild Swans, illustrated by Susan Jeffers and retold by Amy Ehrlich (Andersen, 1981), was selected for this study on the criteria of genre, suitability for storytelling, comparability, quality of the illustration, size of the book, and authenticity of the material.

3. A sound slide presentation of the book, narrated by the storyteller and using one hundred nine 35 mm slides, selected on their representation of the story line and authenticity in portraying the illustrations of the book, was developed by the researcher.

4. During the fall of 1982, the researcher piloted three approaches to analyzing the story to delineate the content and develop an instrument which would provide a measure for the research questions. These approaches are described in Chapter Three. On the basis of this piloting, one approach, a content analysis and development of the instrument directly from the text, was selected for use in this study.
5. The text of the story was submitted to a panel of three public school language arts and/or English teachers for analysis of affective and nonaffective content in the story text.

6. A three-part instrument was developed by the writer. The first part consisted of questions about the type of content in the foreground of attention. The second part consisted of inference questions about the story. The third part contained factual recall content. The instrument was submitted to a regional expert in the language arts field to authenticate the construct validity of the operationally defined content and the overall face validity of the instrument.

7. The storyteller selected for the two live presentations and for narrating the sound slide show was chosen because of her experience in drama and theater groups, her experience in working with children and her interest in and enthusiasm for the study and storytelling experiences.

8. The instrument was piloted with two third grade classes and one sixth grade class from a school not used in the actual study to determine the instrument's reliability (stability).

9. Three schools from the nine elementary schools in the Butte School District Number One were determined comparable on the basis of standardized achievement scores. From each of the three schools, a random sample of thirty third graders was selected. The students were randomly assigned to one of the three modes of presentation. There were ten in each
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group with equal numbers of boys and girls, except in one school in which there were only fourteen third grade boys.

10. The presentations were made to the groups in the spring of 1984. Conditions for presentation were kept as similar as practicable given the actual school settings.

11. The instrument was administered immediately following the presentations.

12. The results obtained were analyzed and reported in this study.

13. All proper authorizations and permissions were obtained before the study was actually begun.

Delimitations and Limitations

This study was restricted in the following ways:

1. A majority of the sources for the review of the literature was obtained from the Renne Library at Montana State University. Additional sources were obtained through interlibrary loan services and a personal library.

2. Ability to draw generalizations from the findings was restricted by the population that was sampled for the study. Such restrictions are appropriate and inherent to exploratory research. Future research with other population groups would be recommended for increasing the generality of such findings.

3. While an attempt was made to choose a suitable story for presentation, the study was nonetheless limited by that selection.
4. The study was limited by the storyteller's interpretation of the story and the inherent variability in communicating that interpretation.

5. While a serious attempt was made to produce a slide show of comparable quality to the other presentations, the different natures of the media precluded exact comparisons.

6. The study was limited to the types of content that were operationally defined and that were rated in the instrumentation.

7. While an attempt was made to control for contaminating variables during the presentations, the use of the actual school setting and the nature of the delivery systems and the subjects precluded complete control of all unforeseen variables.

**Definition of Terms**

Certain terms were considered in the following context:

**Action Content.** (operational def.) A phrase, sentence or clause containing an action verb.

**Affective.** Pertaining to or resulting from emotions or feelings (The American Heritage Dictionary, s.v. "affective").

**Affective Content.** (operational def.) A phrase, sentence or clause, explicitly stating an emotional reaction (e.g., was horrified) or stating an action that is directly associated with emotional reaction (e.g., "she wept").

**Audiovisual Media.** Nonprint instructional materials designed to teach through visual and/or auditory means (Davies, 1974: 461).
Brainstorming. A method of shared problem solving in which all members of a group spontaneously contribute ideas (The American Heritage Dictionary, s.v. "brainstorming").

Cognition. The act or process of knowing in the broadest sense (Webster's Third New International Dictionary, Unabridged, s.v. "cognition").

Cognitive. Of, relating to, being, or involving cognition (Webster's Third New International Dictionary, Unabridged, s.v. "cognitive").

Descriptive Content. (operational def.) A phrase, sentence or clause that depicts, describes, without emphasizing action or emotion; phrases that help draw a clearer "mental picture," e.g., metaphor, simile.

Formal Attributes. A characteristic pertaining to the form as opposed to the content of a specific medium; also relating to the form in which information is coded in that specific medium (Huston-Stein and Wright, 1979:23).

Genre. A literary type or class. Works are sometimes classified by subject...but the more usual classification is by form and treatment (Literary Terms: A Dictionary, s.v. "genre").

Instructional Media. Print and nonprint materials designed to teach and/or accomplish educational objectives.

Mass Media. The instruments of communication that reach large numbers of people at once with a common message, such as magazines, television, radio (Davies, 1974:464).
Medium, pl. media. A vehicle for conveying information; an agent for communicating ideas (Davies, 1974:464).

Nonaffective Content. (operational def.) A phrase, sentence or clause that does not explicitly state an emotional reaction or an action directly associated with emotional reaction. In this study, there were two subcategories of operationally defined, nonaffective content: action and descriptive.

Operational Definition. "The concepts used...should be defined through a sufficiently accurate description of the procedures used by the investigator in establishing and testing them" (Encyclopedia of Psychology, s.v. "operational definition").

Reliability. The extent to which individual differences are measured consistently as determined by coefficients of stability, that is, the correlation of a set of measurements with themselves over a specified time period (Sax, 1980:630).

Symbol System. A set of symbols organized to form a system of interrelated options that correlate with a field of reference, such as language, music, numbers. The difference in the structure of information in these systems may be discussed in terms of information potential which may be transmitted through various media (Olson, 1974:12, 13).

Theme. (operational def). A phrase, sentence or clause that expresses what the story is about, its main point, what it is trying to tell about life.
Validity. The extent to which measurements or items correspond with criteria. In this case, the extent to which measurements support the existence of a hypothesized trait or ability (Sax, 1980:634).

Summary

Media research in the last three decades has yielded inconclusive results, yet the use of audiovisual media in educational settings is extensive. Researchers Salomon (1974A, 1979), Olson (1974), Huston-Stein and Wright (1979), Meringoff (1980), and Gardner (1980), have pointed to a need for studies which identify the attributes and specific characteristics peculiar to the various media. These attributes, which code and transmit information, may affect the thinking processes and information coding of people continually exposed to a particular medium. As Marshall McLuhan hypothesized (1964), the medium through which the information is transmitted may be more influential than the actual message or content itself.

Little research has been conducted on what Schramm (1977) termed the "little media," for example, slides, filmstrips, audio recordings. Yet, these smaller and less expensive media are in common use in education. A filmstrip version of a story, fairy tale or folktale may replace or supplement the teacher or librarian telling the story or reading it aloud. Many of these stories intended for younger children transmit attitudinal and affective content which, hypothetically, might be altered by the medium through which it is conveyed.

The purpose of this study was to investigate whether or not there were differences in third grade children's perceptions of story content
that was brought to the foreground of attention by three modes or presentation: a sound slide presentation, a reader and picture book presentation, and a storyteller presentation. The latter two have been characterized by the personal contact and immediacy of the storyteller's or reader's presence. It was hypothesized that each medium could bring different types of content to the foreground of the children's attention and that this could be reflected in their perceptions of salient content.

The subjects for the study were a sample of third grade students drawn from Butte School District Number One during the 1983-84 school year. A sound slide version of the chosen story was produced using the illustrations from the book and the voice of the storyteller/reader. The story was presented to small groups of the subjects and their perceptions of salient content identified with a researcher designed instrument. The findings of the research have been reported in this study.

The limitations inherent in the nature of the study itself included the choice of the story, the storyteller/reader's interpretation of that story, the inherent variability in conveying that interpretation, and variability resulting from using real school settings. Additionally, while a rigorous effort was made to produce a slide presentation of comparable quality to the storyteller and the reader presentations, the natures of the media precluded exact comparisons. The study was limited further by the types of content that were rated in the instrumentation.
Generalizations from the study were restricted by the fact that the sample was drawn from third grade students from a specific school population.

The following terms, relevant to this study, were defined: action, affective, affective content, audiovisual media, brainstorming, cognition, cognitive, descriptive content, formal attributes, genre, instructional media, mass media, medium (p. media), nonaffective content, operational definition, reliability, symbol system, theme, and validity.
CHAPTER 2

REVIEW OF THE LITERATURE

Introduction

A review of the literature relevant to this study revealed the following: considerable research has been done on audiovisual media, focusing on both general and educational considerations, and these studies have generally yielded inconsistent and inconclusive results. Current media research has focused on specific attributes and characteristics of media, and cross-media comparisons are now being undertaken to delineate the specific dimensions along which media may differ.

Research specifically on storytelling or picture book presentations and types of story hour experiences has only recently begun; while there is considerable research on children's conceptualizations of stories and their use of language, little of this research has direct bearing on this study.

Consequently, this review is organized as follows. Audiovisual media research is treated first. This topic has been subdivided into three general categories: an historical and comprehensive overview of the research and of media education; findings of educational media research and cross-media studies; and research on the specific attributes and characteristics of media, especially as these attributes may
relate to cognitive processes and mental skills necessary to extract information from presentations.

The reader will find considerable overlap among these categories. However, they have been grouped together in an attempt to provide a cogent theoretical background upon which this research has been based. Since there was a paucity of articles that were genuine antecedents to this study, it was necessary to build this theoretical basis on related research and interdisciplinary concerns.

The latter part of this review of the literature addresses the research and theoretical concerns related to the use of stories, language and storytelling and the literary genre of the fairy tale.

**Historical and Comprehensive Overview**

Although a few studies of various media antedate the 1950's, most media research has been conducted in the last three decades. Huston-Stein and Wright (1979), in discussing television, have noted that research has shifted from the medium of television to the content of television: during the 1950's the research focused on the medium itself; during the 1960's research was concerned with television as a socializing agent, especially as it related to violence; in the 1970's other socializing aspects, such as the negative effect of advertising and stereotypes, were examined. The authors suggest that new research examine the forms of the medium rather than its content, an idea first popularized in the 1960's by Marshall McLuhan (1964) who suggested that formal properties of audiovisual media might have profound effects on the basic modes of thinking and cognitive processing.
Gardner (1980), who has also noted that the studies which have been done on television have failed to tell us about the medium per se, has proposed the following reasons for this deficiency in the research. First, much initial television research made use of methodology applicable to older forms of media. Second, television research has been practically rather than theoretically oriented because of society's concern with violence, commercials, and so on. Third, since almost everyone in this country has a television set, no valid comparison can be made between people who have televisions and those who don't.

One way media research can be categorized is according to purpose, specifically, media as a form of mass communication and media as an instructional tool used to achieve some educational objective. However, one current researcher indicated that this may be an inappropriate distinction: "Only after one has learned about the psychological effects of unique, inherent attributes of media qua media can one ask about their utility for instruction" (Salomon 1974:388).

Olson and Bruner (1974) have also theorized that such distinctions may be inappropriate: they have noted that education has assumed that knowledge was central to the educational enterprise and independent of both the form of experience from which the knowledge was derived and the goals for which it was used. They have theorized that different forms of experience may yield nonequivalences, not so much in the knowledge acquired but in the skills involved in extracting or utilizing that knowledge: "Instructional means converge as to the knowledge conveyed but they diverge as to the skills they assume and develop" (Olson and Bruner, 1974:149).
Schramm (1977) has reviewed and evaluated research in media according to the type of delivery system, e.g., instructional television, programmed learning, slides, radio. He has noted that the bulk of the research has been done on what he terms "big media," for example, television and computer assisted instruction. Primarily, studies have been conducted on instructional television. There have been far fewer on the "little media," e.g., slides, filmstrips, radio, records. Schramm has also noted a doctoral dissertation by D. W. Stickell at Pennsylvania State University in 1963 which pointed to the questionableness of the experimental design of many media studies. Of 250 experimental comparison studies (classroom instruction compared with television instruction), Stickwell was able to find only ten studies which he termed fully interpretable, meaning that they had met every requirement of a rather demanding standard.

Finally, Allen (1980) has noted that media education, popular in the late 1960's and early 1970's and attributable in part to the influence of Marshall McLuhan, has largely disappeared from public school curricula. McLuhan's Center for Culture and Technology at the University of Toronto was closed in 1980. The return to basics in education movement reinforced the concept that mass media detracts from basic literacy skills. Media education, affiliated with the arts and humanities and interdisciplinary by its nature, has lost its credibility as public concern about diminished basic skills has led to a more compartmentalized and structured curriculum. Allen (1980) has noted that a role of education has been to provide students with the skills required to process and utilize information to their best advantage, and that
in an age of mass media and electronic communication, media literacy ought still to be considered an important skill.

As a counterpoint to this view of media education, Morrow (1979) has indicated that media education lost its impetus because McLuhan's theories were deterministic and negativistic in their view of human potential as being subject to the medium itself and because little research existed to substantiate any of the claims about media.

Findings of Educational Media Research and Cross-Media Studies

Authors who have reviewed research relevant to education have arrived at different conclusions. Moldstad (1974) stated that studies have largely compared relative student learning outcomes when methods incorporating instructional technology have been evaluated against traditional methods. In reviewing some thirty studies covering various forms of media, he concluded the following: significantly greater learning results when media is integrated with traditional instructional methods; equal amounts of learning are accomplished in less time when instructional technology is incorporated; multimedia instructional programs based on a systems approach often facilitate more effective student learning than traditional instruction; and students usually prefer multimedia and/or audio-tutorial instructional programs when compared to traditional instruction. The reader should be cautioned, however, that the title, "Selective Review of Research Studies Showing Media Effectiveness," indicates that articles for inclusion in the review may have been chosen because they did show the effectiveness of media.
Schramm (1977) has concluded that research shows media can teach effectively. Most of the research has been done on what he terms "big media," primarily instructional television. Few studies have dealt with simple media. In spite of the fact that instructional television can teach effectively, Schramm stated that there is no basis in the research for saying that students do learn more or less from television than from classroom teaching. Furthermore, review of the research shows that the better the design the less likely the chance of finding significant or consistent differences when comparing learning from audiovisual media to learning from another instructional method. These comparative studies have contributed little to a theory of media. Thus, Schramm concluded that learning is more affected by what is delivered than by the delivery system itself.

In the introduction to the Seventy Third Yearbook of the National Society for the Study of Education entitled, *Media and Symbols: The Forms of Expression, Communication and Education*, editor Olson (1974) stated that surveys of the research which compare different treatments such as film versus print versus live teachers overwhelmingly showed no significant difference. He indicated the impact of educational technologies is either negligible or perhaps unknown since we don't know how to assess the psychological effects of the technologies or how to adapt them to educational purposes. Olson (1974:9) also stated that research, both educational and psychological, is severely limited by the absence of a theory of the structure of the symbols that make up such an important part of our environment, the media that propagate those symbols, and the cognitive consequences of exposing children to them.
Salomon (1978) has summarized the media research as indicating the following: all media can instruct. Media may be interchangeable unless critical attributes are emphasized. And, media are composed of different, distinctive elements, each element being a source of possible variation. Salomon has also emphasized that it is essential to get a deeper understanding of the components of media and how these operate under different conditions to develop theories of media in education.

In looking at different mental skills that are necessary to extract information from presentations, there exists much research which compares children's developmental language abilities, i.e., reading as opposed to listening skills. For example, Durrell (1969) found that listening vocabulary is greater than reading vocabulary at all lower grade levels. By fifth grade reading comprehension reaches ninety percent of listening comprehension and by eighth grade the two abilities are equal. While studies such as these are not real cross-media investigations, they do indicate the need to differentiate the cognitive skills required to process information.

Paris and Mahoney (1974) have investigated children's derivation and retention of meaning from pictures and from sentences. In their study, they presented the same relationships either verbally or pictorially. Their results indicated that fourth grade children could correctly verify more assertions about pictorially than orally presented information.

More specific to cross-media comparisons, Jerome Bruner (1964) has theorized that in young children's cognitive development, learning and
problem solving situations rely heavily on visual attributes. A study by Hayes and Birnbaum (1980) supports this theory. Their studies, conducted to assess the degree to which preschool children and adults remember the audio portions versus the video portions of popular television shows, indicated that children's retention of visually portrayed events was consistently higher than their retention of auditory events. Adults, however, showed comparable retention of the two types of events. Results indicated that preschoolers tend to ignore large parts of the audio portions of certain television programs and pay greater attention to the visual aspects.

In another cross-media study by Rohwer and Harris (1975), paragraphs of prose were presented orally, in print, and in pictures either alone or in combination. Results of the study indicated that the degree of success with which information is conveyed to children will vary according to the child's background, the type of media presentation, the type of information to be acquired, and the type of performance used to indicate acquisition. Performance in the combined media conditions, especially oral and pictures together, was superior to performance of a single media condition for low socioeconomic black children. However, the combinations of media were of little benefit in the performance of high socioeconomic white subjects.

There have been few studies specifically relating the effect of media to a subject's emotional response. Some research, such as that by Franklin and Kemp (1980), has indicated that the use of audiovisuals in the teaching of poetry may produce a greater affective involvement on the part of the student, which in turn may facilitate retention of
cognitive material. Simonson, Thies and Burch (1979) have reviewed experimental studies dealing with media and attitudes published in \textit{AV Communication Review} from 1953 to 1977. They stated that there have been four trends in media attitude research: early studies examined preferences and liking of media presentations; a second phase examined changes in preferences; a third phase focused on attitude comparisons, particularly when mediated instruction was compared with traditional instruction. The current phase was identified as that of media/attitude interaction in which media characteristics have been isolated and compared to the variables of the learner and the learning process. They concluded the following: a positive link exists between learner attitudes toward content information and achievement; a preference has been found for mediated instruction; and the relationship between media, attitude and achievement, if any, has not been clearly established. In a follow-up article, Simonson (1980) concluded that to date there were no specific guidelines for generating attitude changes through a use of media.

Croft et al. (1969) examined attitude changes elicited by two identical verbal presentations, one live and one videotaped. They hypothesized that greater attitudinal changes would result from the live presentation because more cues would be available from which information could be extracted. Two hundred twenty introductory sociology students from Brigham Young University were pretested to identify attitudes toward intercollegiate athletics. An attempt was made to change the attitudes in a negative direction since generally positive attitudes existed. Three treatment conditions were applied:
taped presentation, and a control situation in which no persuasive message was presented. Results indicated the live presentation produced significantly greater attitudinal changes (p<.01) than did the videotaped presentation, which in turn produced greater attitudinal changes than did the control situation (p<.02).

Collins (1970) examined the interaction between media and age in the learning of material judged to be essential or nonessential to comprehending a media presentation. His subjects, one hundred sixty nine children in grades three, six, seven, and nine, were shown a media presentation for which they were given no instruction to learn. They were tested afterwards on essential and nonessential content. The results showed that the learning of essential content increased as a linear function of age while the learning of nonessential content was found to be a curvilinear function of age.

Specific Attributes and Characteristics of Media

As noted earlier, media studies have generally produced inconclusive results. Salomon (1974), Olson (1974) and Huston-Stein and Wright (1979) have pointed out that perhaps the studies have compared differing technologies and content rather than the characteristics and attributes that accompany the various media. It is to this topic that this section of the review has been addressed.

Huston-Stein and Wright (1979) suggested that some formal features of a medium may be viewed as representing certain mental skills or mental operations: a media presentation may require a new skill or call upon an existing skill, operation or code. These codes could
conceivably affect basic modes of thinking and cognitive processing: individuals exposed to a specific medium might adopt these codes into their own thinking. They suggested research in the following areas: delineating the formal features that attract and hold attention; ascertaining whether formal features are more or less important than content in gaining and holding attention; and identifying any developmental changes in the effects of formal features.

Huston-Stein and Wright (1979) cited a paper, "Discrepant Social Communication," presented by F. R. Volkmar, E. L. Hoder and A. E. Siegel at the March 1977 meeting of the Society for Research in Child Development, which supported the predominance of auditory cues in young children: a series of studies of children, one to three years old, showed that when visual and verbal cues from an adult dictated contradictory behavior, the young children followed auditory cues more often than the visual cues. However, Hayes, Chemeski and Birnbaum (1981) have found a visual superiority effect, i.e., a higher retention of visual than auditory information, under conditions of both intentional and incidental learning.

Huston-Stein and Wright (1979) noted that papers presented by Gavriel Salomon and his colleagues at the University of Jerusalem supported the hypothesis that the understanding of and ability to use common media codes increases with age and, to some extent, experience. Less experienced and younger viewers benefited more from those media formats which supplanted related intellectual skills. The work also indicated that content messages were better comprehended when the children understood the formats used to represent the contents.
In a paper noted by Huston-Stein and Wright (1979) presented to the March 1979 meeting of the Society for Research in Child Development, "Recall of Television Content as a Function of Content Type and Level of Production Feature Use," the authors Calvert, Watkins, Huston-Stein and Wright found that children benefited from salient formal features (action, sound effects, special visual tricks), i.e., these features helped them remember central, theme-related content. Furthermore, these salient formal features benefited kindergarten children more than they did third and fourth graders.

Salomon (1974, 1979) has addressed the failure of research to identify significant differences in what is learned via various modes of presentation. Schramm (1977:273) has said that while all media can teach effectively, "learning seems to be affected more by what is delivered than by the delivery system." But Salomon (1974, 1979) has contended the research has failed to address media's most essential characteristics: its symbol systems. A symbol system as defined by Olson (1974:12, 13) is

a set of symbols so organized as to form a system of interrelated options which are correlated with a field of reference, e.g., language, music, numbers. This difference in the structure of information in different symbolic systems conveyed by different media may be discussed in terms of information potential.

Salomon has indicated that the different symbol systems of media call for different mental skills, which may in some cases be cultivated and transferable and may also overlap. The specific content qualities and the ways the information is structured and presented can be distinguished. "The point is that media of communication and instruction are
most essentially distinguishable from each other in terms of the symbol systems one can best use with them" (Salomon, 1979:133).

Specific to this issue, early research by Salomon (1972) addressed the question of whether the ability to visualize a certain operation and apply it covertly to new instances can be improved by exposing a person to a presentation which covertly supplants the visualized operation. The studies specifically focused on the zoom technique used in filming in which the focus is moved rapidly away from or toward the photographic subject. The results of their studies suggested visual media can be used in instruction to supplant images of operations useful to attaining certain goals, but not yet satisfactorily mastered by the learners.

Another early study by Salomon (1974A), again using the zoom technique but also a technique of laying out or arranging solid objects, also led him to conclude that a media modeling, i.e., filmic modeling of a schematic operation, can lead to its internalization and thereby improve the ability to use the operations as a mental skill.

Salomon's research (1977) has also found that when content is held constant for messages, different formats of a medium, specifically television, call for different mental skills. Their studies have also approached the question of cross-cultural differences and the cultivation of media skills (1977-ERIC, 1976). They found that a literate exposure to television did correlate positively with the mastery of relevant mental skills and that such correlations were found especially among younger children. Their research used the Sesame Street television program and Israeli and American children who had
been differentially exposed to the medium of television. Salomon's research led him to conclude that it is the symbolic, communicational differences of media, rather than their technological differences, which make the significant difference in learning.

Salomon (1974B) has also postulated that media can be conceived as composed of three major components: the symbol systems, the messages, and the technologies of transmission. Additionally, these interact with the learner and the specific educational goal or task. He stated that one can postulate that different modes of information extraction and processing are activated to the extent that different media code information in different ways: one can ask whether or not the same meaning is extracted when roughly the same idea is presented in two different symbol systems. In ordinary experience, for example, a filmed novel may convey a different meaning from its written counterpart, and a play may convey a different message when it is read than when it is performed.

A study by Meringoff (1980) showed that there is a difference in the kind of information children derive from different media presentations. The researcher compared children's apprehension of an unfamiliar story read to them from an illustrated book or presented as a comparable televised film. Forty eight subjects, twenty four with a mean age of seven and six tenths years and twenty four with a mean age of nine and six tenths years, were randomly assigned to one presentation or another and individually presented the story. It was hypothesized that because television can depict story actions dynamically and concomitantly, behavioral features of the story would be more
salient and the television presentation would result in a greater
recall of actions and a greater reliance on visual content in drawing
inferences about the story. In contrast, the book presentation might
allow for more auditory attention to the text, more recall of story
language that eludes visual depiction, and a greater use of textual
content and more outside story knowledge as a basis for inferences.

The children were measured on: the recall of objective informa­
tion of the story, a picture ordering task (which was an alternative,
nonverbal measure of an understanding of the story line), the infer­
ences drawn from the story and sources used to substantiate those
inferences, and the viewing behavior of the subjects.

Results showed that children given the television version exhib­
ted a higher recall of the story actions than those given the picture
book presentation (p<.05). Conversely, the picture book presentation
elicited greater recall of the story's figurative language than did
the television presentation (p<.01). As hypothesized, the older
children recalled more of the actions (p<.01), figurative language
(p<.05), and dialogue (p<.01) than did the younger children. The
different presentations were also correlated with the children's use
of different kinds of information as a basis for making inferences.

The television story was associated with a significantly greater use
of visual information as a basis for drawing inferences. The book
presentation generally was associated with more use of other kinds of
information. The children exposed to the television story used more
physical gestures to illustrate their verbal retelling than did those
presented the book.
Meringoff credited Salomon (1979) with a possible implication of her study:

If a given medium brings specific story content to the foreground of children's attention (that content emphasized being a function of its own material properties), then children repeatedly exposed to this medium may accumulate experience with some kinds of information more than others. They may attend to it, remember it, interpret it, use it in problem solving, perhaps even prefer it to other information. Moreover, they may be cultivating the particular cognitive skills required to extract this information from the symbol systems in which it is represented (Meringoff, 1980:248).

Meringoff added a possible consequence: children exposed primarily to television stories may develop a strong sensitivity to and visual memory of these stories; children exposed more to less visual media may foster greater listening skills and may be able to apply more self-generated knowledge in interpreting their meaning.

Meringoff's study was supported by Harvard's Project Zero. Another Harvard researcher, Howard Gardner, has noted (1980) some additional supporting research. Using film materials developed by Weston Woods Company, researchers presented children with a book and reader or a film version of a storybook. The studies showed that children exposed to a book version remember much more of the story on their own and are also better able to recall information when they are cued. He noted a significant difference that book children can recall precise wording and figures of speech but that subjects exposed to the television version tend to paraphrase the verbal information.

Additionally, Gardner noted that both groups of children make inferences about the story and reach the same conclusions, but their line of reasoning is different. Book children tend to draw on their
own or real world experiences, whereas television children are likely to depend on what they see, seldom inferring beyond the visual information. There are also notable differences in the children's conception of time and space. Adults do not show these differences: only modest differences are evident in their inference making process.

Gardner concluded:

In all, television emerges as a much more self-contained experience for children, and within its boundaries, the visual component emerges as paramount. The book experience, on the other hand, allows for greater access to the story's language and suggests greater expanses of time and space. Books may encourage readers to make connections with other realms of life—just as some bibliophiles argue (1980:113).

In summary, a review of the media literature points to the following conclusions. The research has branched in different directions which include analyzing and assessing the following: the effects of content, media as a socializing agent, the effectiveness of instructional media, the effectiveness of media in changing attitudes, and the developmental differences in attending and responding to the various media. More recently, media research has focused on formal attributes and symbol systems characteristic of the specific media. These attributes and characteristics may call upon different mental processes for information processing.

Some writers have suggested that with repeated exposure to a specific medium an individual may gradually come to use the required mental processes demanded by that medium more and more in his or her own problem solving and cognition. This possible effect was suggested by Marshall McLuhan in 1964. Furthermore, most of the research has been done on what might be called the "big media"—instructional
television, mass media television, computer aided instruction. Little research has been done on the "little media" such as slides, filmstrips, tapes, radio. While there have been studies on the effectiveness of media presentations in changing attitudes, there have been few, if any, on the effectiveness of different media in bringing affective content to the foreground of attention. The literature indicates that we are media consumers without being media literate, i.e., we have little understanding of the psychological and emotional effects of prolonged exposure to various media and we may be influenced by the representational characteristics of the media as much as by the content it delivers. These are the concerns that this current research has attempted to address.

Stories, Language and Storytelling

There are a limited number of articles on storytelling and little, if any, specific research on the form of presentation. However, there is a large body of research on stories and children's language development. Arthur N. Applebee (1978) has written a book, The Child's Concept of Story, Ages Two to Seventeen, in which he details his and others' research on the language processes children use when they hear stories and the linguistic and psychological factors organizing and constraining their responses to the stories. He has found that children as young as two and a half years old use language in storytelling patterns, often assuming the stories are about real people and actual events. As they mature, children gradually create stories which are more complex structurally and which involve settings, actions and themes outside their immediate experience. It is through this
distancing of stories that children are able to explore the consequences of anxiety producing situations. This theory is consonant with Bettleheim's (1976) view that children can deal with emotionally and existentially traumatic experiences through the vehicle of the fairy tale which inherently allows for a child's distance from troubling situations.

Brown and Smiley (1977) have used story recall as a vehicle for learning about the perceived organization and importance of story content. They found that children favor the central theme when recounting stories and disregard nonessential details and that recall efficiency is affected by the structural importance of the story units. Similarly, Johnson (1970), in a series of experiments, objectively divided verbal passages into linguistic subunits according to acceptable pausal locations and then had the linguistic units objectively ordered according to their importance to the structure of the larger prose passage. Subjects attempted verbatim recall of a single prose passage immediately after reading it or after a sixty three day interim. Results showed that the structural importance of the linguistic units was related to their recall.

Mandler and Johnson (1977) have presented a report analyzing the underlying structure of simple stories and examining the implications of such structure for recall. They use the term "story schema" to refer to an idealized internal representation of the parts and their relationships in the story. They theorize that people construct story schemata from two sources: from listening to many stories they develop knowledge about the sequencing of events, and from experience, they
develop knowledge about causal relations and various sequences of actions. Schemata act as a general framework within which detailed comprehension takes place. For example, it directs attention to certain aspects of incoming information. The authors also theorize that story schemata are used as a set of retrieval cues; specifically, when one can't remember an exact aspect of a story, he reconstructs what might have occurred.

Blank and Frank (1971) have also examined story recall and language acquisition in young children. Specifically, they investigated kindergarten children's recall of various syntactic transformations under different presentations and they looked at the relationship between intellectual functioning and linguistic performance by kindergarten children. They found that the more actively involved the subject was in the presentation, the better the recall.

One of the studies dealing with children's language development most relevant to the present research was an investigation by Smardo and Curry (1982) of story hours and receptive language. Their research is clearly a cross-media study, but it is discussed in this section because of its use of story material. Their study concerned the effectiveness of three kinds of public library story hour presentations on the receptive language of preschool children from varying socioeconomic levels. The three types of story hour presentations included live, videotaped, and 16 mm film. The authors defined receptive language as synonymous with auditory decoding and active listening, i.e., the ability to comprehend or understand the language which is heard. The children were divided into four groups according to presentation:
Group One received a live story presentation by a professional librarian; Group Two received a videotaped story hour program of Group One; Group Three received a commercially produced 16 mm film presentation based on the books used in Groups One and Two; and Group Four, the control group, received no experimental treatment. Each story hour session was approximately thirty minutes in length and was conducted once a week for six months.

Two instruments were used to measure the children's receptive language: a standardized test and a researcher contracted designed instrument of story comprehension. Results of the study indicated the following order of effectiveness of presentations on acquisition of receptive language skills as measured by the standardized test: live, film, video, and control. Thus, the story hour presentations were effective in improving receptive language skills as measured by the standardized test. However, the data obtained by the other instrument did not show any differences of story comprehension based on story hour treatment groups.

Storytelling itself might be termed a folk art which has just recently been revived. While storytelling will never become an important medium in a formal educational setting, its revival in society indicates that among some groups, perhaps those disenchanted with the technologies of mass media, it may be a valued form of communication.

The study by Meringoff (1980) cited earlier, which compared children's apprehensions of an unfamiliar story presented as a televised film or as a reader and picture book presentation, indicated that there were significant differences in the children's responses to comparable
story material presented in the two different media. A reader and picture book is not the same format as a storyteller. However, the observed differences provided some support for the hypothesis that there are structural differences in the media and that these differences, particularly the relative visualization, influence which content is conveyed more effectively.

George Shannon, writing in *English Journal* (1979:50), referred to the storyteller as the richest audiovisual device available. A film, a filmstrip or recording may share the same subject matter, but it is the storyteller in person, sharing images directly, that puts him above the rest. Storytelling for both the teller and listener is one of the most personal of experiences.

Storyteller Ramon Ross (1972) theorized that across the gamut of daily activities there is a rebirth of interest in keeping alive the "humanness" of immediate participation:

That sense of personal contact is lost somehow when we view the most talented entertainer on television or watch the grandly choreographed dance. Neither gives us the same experience as being in the presence of a real-live storyteller or clasping hands with others in a simple country dance. Marshall McLuhan was right. The medium does alter the message....Reassembling a performer out of a picture consisting of tens of thousands of tiny points of light is not the same as sitting at the elbow of a performer who responds to us, catches our thoughts with him, warms to our laughter and holds our flagging interest (1972:4).

If such differences do exist among the coding properties of the media, it is perhaps unfortunate that less research has been conducted on the simpler media, including the storyteller and the reader presentations. Continual exposure to certain forms may influence an individual's perceptions and thought processes. If such is the case, the
determination of what these effects are could have considerable implication for education.

**Literary Genre - The Fairy Tale**

Little or no experimental research exists on literary genre, although a large body of research is emerging on the structure of stories and the use of language in stories. The literary genre of the fairy tale is treated theoretically and philosophically and is included in this discussion because theoretical considerations were used in this writer's choice of a story for the study.

The fairy tale emerged from oral tradition of folklore (Yearsley, 1929) and as such is particularly suitable for storytelling. Yearsley noted that the actual delivery of fairy tales in this oral tradition was extremely conservative in that very little variation existed in words, gestures, actions, and facial expressions. Thus, while some variation would inevitably evolve through individual retelling over generations, the story's essential elements remained the same.

Psychologist Bruno Bettelheim (1976) hypothesized that traditional fairy tales, handed down orally, may be superior to contemporary children's literature in their ability to stimulate and nurture the resources needed for coping with difficult inner problems. He stated that contemporary literature provides information, entertainment and teaches about specific conditions of modern life, but fails to allow a child to clarify his emotions in a symbolic and simplified manner. The fairy tale presents universal problems and existential dilemmas (love, death, courage) symbolically and allows the child to fantasize.
and ruminate on his own solutions without couching them in the concrete and sometimes threatening reality of his actual experience. This concept is consonant with Applebee's (1978) findings that children experience distancing with their stories as they mature, which allows children to explore the consequences of otherwise taboo situations.

Mandler and Johnson (1977), in analyzing the underlying structure of simple stories, have theorized that the story schema is used as a set of retrieval cues, that is, when people can't remember an exact aspect of a story, they reconstruct what might have occurred. This accounts for the regularization of irregular stories over time. They note that folktales, fables, and myths have similar and unusually clear structural characteristics.

Storyteller Ramon Ross (1980) indicated that legends and migratory tales, both part of the oral tradition from which folktales spring, are the representation of archetypes, that is, thematic realities, part of the accumulated wisdom of humankind. Archetypes such as love, death and war are manifested symbolically and are formed by centuries of experience in the folk wisdom of a people.

Bettleheim (1976) has stated that a distinction should be made between oral, traditional fairy tales and literary fairy tales which were popularized by Hans Christian Andersen. The latter resemble oral fairy tales in setting, characterization, social themes, and language but are written by a single individual. Children's author Jane Yolen, however, has implied this distinction is artificial: "There is nothing pure about a folktale after all. The oral story is a bastardized one already. It has on its body the thumbprints of history" (1978:702).
Bettleheim (1976), Yolen (1978) and L'Engle (1978) have discussed several prevalent motifs in folklore and fairy tales which contain strong affective content. The following are some that were included in their discussions: the struggle of good versus evil; the true princess; the younger son; separation from loved ones; courage; the threat and fear of death; the quest; the transformational tale where man becomes beast; and the happy ending. These motifs, with their potential for carrying affective content, have existed for centuries in many different fairy tales and, as Yolen has pointed out (1977), continue to exist today in popular television cartoon characters and space fiction heroes. These aspects of the fairy tale were considered by this researcher in the selection of the story book used for this study.

Summary

Chapter 2 presented a review of the literature relevant to the background and theoretical considerations of media studies and theoretical considerations of stories and storytelling. Because of the exploratory nature of this research, this review was somewhat interdisciplinary in its approach. The review included an overview (historical and comprehensive), the findings of educational media research and cross-media studies, a discussion of the literature that has dealt with the specific attributes and characteristics of media and a discussion of stories, language and storytelling. The chapter was concluded with a discussion of the theoretical considerations of literary genre and the fairy tale.
CHAPTER 3

PROCEDURES

Introduction

Audiovisual media presentations are prevalent in most children's experiences today, even, as noted by Smardo and Curry (1982), influencing the traditional public library story hour. Olson (1974) and Salomon (1974, 1979) have hypothesized that different media represent unique systems which structure information differently and may, therefore, have various information potential. Meringoff (1980) has suggested that different media bring different content to children's attention and with repeated exposure they gain familiarity with that content and could come to prefer it and use it in problem solving.

Schramm (1977) has stated that more research in the audiovisual field has been done on what he calls the "big media" such as instructional television than on the "little media" such as filmstrips and slides. Yet, the latter type is also used throughout education.

In considering these problems, this study was designed to investigate whether or not there are differences in third graders' perceptions of story content that is brought to the foreground of attention by three modes of presentation representative of the less elaborate audiovisual media and traditional presentations: a sound slide presentation, a reader and picture book presentation, and a storyteller presentation.
The procedures that were used are described in this chapter. The first section describes the review of the literature, the selection of the story, and the production of the sound slide show. The second section describes the piloting which was done to analyze the story and develop the instrument. Three different approaches for the analysis and instrument are discussed: brainstorming, interview, and textual analysis. The rationale for the final choice of the story analysis and development of the instrument are given. The third section explicates the methodology used in completing this study. The chapter concludes with a summary.

Review of the Literature

An initial review of the literature was conducted during spring 1982. The first phase of the review obtained a general overview of the field of media research. Studies relevant to the use of audiovisual media in education, general trends that have developed in the last three decades of research and media education in the schools were noted. Sources used primarily included Education Index, Psychological Abstracts and ERIC Documents.

The second phase of the review focused on research conducted primarily during the last ten years and dealing with the characteristics and attributes of media and its possible coding of information as symbol systems. The doctoral dissertation, A Story, A Story: The Influence of the Medium on Children's Apprehension of Stories, (Meringoff, 1978) comparing apprehension of content of a televised presentation as opposed to a book and reader presentation was used to
provide theoretical background and methodological design for this study.

The literature review included theoretical and philosophical articles dealing with the origins, attributes, thematic content, and possible significance of fairy tales as a literary genre. It also dealt with the storytelling tradition as a folk art which has received revived interest and which may possess characteristics valuable to the transmission of cultural heritage.

**Selection of the Story**

The selection of a story was based on considerations which include articulated characteristics that would make a story suitable for such a study and are similar to those used by Meringoff in her study (1978): genre, comparability, authenticity of the material, and familiarity.

The first consideration was the type of story to be used. A fairy tale was preferred over other genre because of its possible potential for conveying affective content and because it originated from the oral tradition which is particularly suitable for storytelling. Bettleheim (1976) hypothesized that fairy tales may be superior to contemporary literature in stimulating the inner resources which enable a child to clarify his emotions. Through their symbolic representation of universal problems and existential motifs, they allow a child to deal with difficult and affectively threatening problems in an abstract and safe manner.

The fairy tale "The Wild Swans" (Andersen, 1980) was chosen because it embodied some of the motifs mentioned by Bettleheim (1976), Yolen
(1978) and L'Engle (1978) as containing strong affective content. These included: the struggle of good versus evil; the true princess and the younger son; separation from loved ones; courage; the fear and threat of death; the quest; the transformational tale where man becomes beast; and the happy ending. The story is an adaptation by Erlich, illustrated by Jeffers, of Hans Christian Andersen's version of the Brothers Grimm "The Six Swans" (Grimm, 1963). In the adapted version, eleven brothers are turned into swans by a cruel stepmother and their sister Elise is banished from the palace. After a number of years, Elise finds her brothers, who recount how they are transformed into wild swans at daybreak and back into human form each nightfall. Elise is told by a fairy that she can break the spell by knitting eleven shirts for the swans from the flax of stinging nettles and vowing complete silence until the task is completed. A handsome king finds Elise and marries her but is eventually persuaded she is a witch and should be put to death. At the moment she is taken to the stake, she completes her task, throws the shirts over the wild swans and breaks the spell. At the happy ending, she is reunited with her brothers and with the king who now understands her peculiar behavior.

Besides genre, the criterion of comparability had to be considered in selecting a story. The study required that similarity exist between the presentation of the story's content while employing characteristics of each mode. A pilot sound slide show was developed in May 1982 to establish the successfulness with which the book could be transformed into that medium. Additionally, the rather large format of the book (nine and three-fourths inches by twelve and one-fourth inches)
enhanced its suitability for the reader and book presentation as the subjects were able to see the illustrations easily.

Authenticity of the material was considered in choosing a story. Published story materials were considered preferable to nonpublished because of the possible applicability of the study's findings. This was the same reason Meringoff (1978) chose existing materials for her study.

The question of familiarity was addressed in selecting the story. While Meringoff (1978) thought unfamiliarity was important, i.e., that the children should have no prior exposure to the story in either format, the preference of a fairy tale for its affective and archetypal content obviated the use of a totally unfamiliar story. However, the story of the swans has not been as popularized as have some other fairy tales, e.g., Cinderella and Snow White. Additionally, the chosen version differs in story line from the Brothers Grimm version (1963) and is a recent publication. Finally, the choice of a fairy tale is in part posited on the familiarity of motifs which may symbolically code affective content. The researcher judged that the motifs of the true princess, the quest, the transformation, and the happy ending would be familiar to most children whether that exposure had come from the story of the swans or another tale.

Production of the Sound Slide Show

A pilot show was produced in May 1982 using approximately ninety 35 mm slides selected for their representation of the story line and their authenticity in portraying the illustrations in the book. The
entire text was read and taped and this narration synchronized with the slides. A brief piano selection from Debussy's "Claire de Lune" was added before and after the narration. Inaudible advance and dissolve technique, whereby one picture fades into another so there is no discontinuity on the screen, were used. The duration of this version was over twenty minutes and the researcher judged that not only was it too long for holding third graders' attention, but it also would make the exact memorization of the story unduly difficult for the narrator.

The text was shortened during the fall of 1982 by the researcher and an experienced storyteller and elementary language arts teacher. Two sections judged nonessential to the story line and transmission of affective motifs and unnecessarily complicating were eliminated entirely. The rest of the text was condensed, making it more amenable to storytelling.

The researcher wanted the sound slide show to approximate a sound filmstrip presentation as much as possible since the latter is prevalent in audiovisual renderings of children's literature. Five recently released filmstrip versions of children's stories were viewed. Exposure time per frame and photographic techniques were noted. Exposure time ranged from as little as five seconds to as long as thirty-three, with an average being approximately ten to twelve seconds. The photographic techniques included full page shots, closeups, flashbacks to earlier pictures, and changes in vertical and horizontal orientation.

The pilot slide show was revised during spring 1983. Additional slides using close-ups and other techniques were taken, the dissolve feature eliminated since filmstrips do not have that attribute and the
shortened text used for narration. A new selection was made of one hundred nine slides representing the revised text. Exposure per slide averaged about seven seconds and the total length of time was twelve and a half minutes. The music was left only at the very beginning and end of the narration since it could influence the students' perceptions of affective content. However, since most filmstrip versions of stories have music during at least part of the text, it was judged desirable, both for its aesthetic quality and authenticity, to leave in those brief segments.

**Approaches Piloted for Analyzing the Story and Developing the Instrument**

The following three techniques were explored during a pilot period to determine the most appropriate approach for story analysis and instrument development: brainstorming, interview and textual analysis.

**"Brainstorming" Analysis**

**Purpose.** The purpose of the brainstorming technique was to determine the story content from the text using children themselves to analyze "what is the content?" and "what content is important?"

**Rationale.** The children themselves should be able to tell what the story is about. Their perceptions of content and their actual language could be used as a basis for developing the instrument. This technique could avoid an artifically academic or unrealistic approach to developing instrumentation.

**Procedures.** Three sets of children with accompanying different procedures were used.
1) The first set were the researcher's own two children (ages six and ten at the time). They had seen and heard the story many times. They were read the story and told to "tell everything they could remember that was important about it." Their responses would have to be considered contaminated; however, the researcher thought they were important to include because with their repeated exposure to the story they might be more attuned to the content that was being emphasized by the text itself.

2) The second group, a fourth grade class from Webster Garfield School, Butte, was read the story during their library period and encouraged to brainstorm freely. Responses were taped and written down. Questions were nonguided although "what happened next?" was asked.

3) The third group, also a Webster Garfield fourth grade class, was encouraged to brainstorm but more directed questioning was used. Responses from this group more closely followed the story line and seemed to be more detailed, but not substantially different from those of the other group.

Analysis of the Content. The children's responses were typed on slips of paper to facilitate analysis. The following types of content, which would distinguish much of the story content, were operationally defined:

Affective. A phrase, sentence or clause explicitly stating an emotional reaction (e.g., "was horrified") or stating an
action that is directly associated with emotional reaction (e.g., "she wept").

**Action.** A phrase, sentence or clause containing an action verb.

**Descriptive.** A phrase, sentence or clause that depicts or describes, without emphasizing action or emotion; phrases that help draw a clearer "mental picture," e.g., metaphors.

**Theme.** A phrase, sentence or clause that expresses "what the story was about," "its main point," "what it was trying to tell about life."

The content was sorted by the researcher and two other adults into categories and an 89.7% agreement on placement in the categories obtained. See Appendix D for the actual items.

**Criticism of This Approach.** The researcher did not think that these brainstormed content items were particularly amenable to instrumentation for this study for the following reasons:

"Story content" as a construct can be viewed two ways: first, as fragmentary bits, or second, as parts that carry meaning or accomplish a purpose. Using the first construct, sentence fragments or even clusters of words (such as "about a princess," "a wicked queen," "witches") would qualify as operationally defined content.

Meringoff (1978) approached content in this manner. For example, "figurative language" was defined by the use of words for their formally expressive properties, aside from possible referential meanings. "Dialogue" was defined as discrete clauses of
speech directed between characters, often preceded by "said" or "answered." Content thus defined can be quite fragmentary.

However, when content is viewed as accomplishing a purpose in the story or carrying meaning, its length can vary but it is no longer fragmentary nor removed from context.

Most of the brainstormed content items were classified under the first construct: they were fragmentary bits of information that did not necessarily transmit meaning out of context. To determine, through the development and administration of an instrument, which of these kinds of content are in the foreground of attention would be more the determination of fragmentary units in the foreground of attention than meaningful content. Furthermore, the development of such an instrument would have required the researcher to couch these brainstormed items in some sentence context. To do so would have departed even further from the story line and added an additional risk of experimenter bias.

This study was primarily concerned with "affective" content posited against "nonaffective." The researcher wanted to determine whether affective "messages" or aspects of the story are brought more to the foreground of attention with one mode of presentation or another. The implications of this study could have been severely limited if content were reduced to fragmentary units, whereas the findings could be more generalizable and applicable if content were viewed as having meaning or accomplishing a purpose. The researcher judged that the student analysis of the
story's content as derived from the brainstorming was not amenable to this more all-encompassing approach.

Interview Approach

Following Meringoff's approach (1978) to analyzing the story and determining type of content in the foreground of the children's attention, the researcher developed an interview format, which (theoretically at least) could be used by specially trained interviewers to elicit responses immediately following the presentations. The story would have first had to be analyzed for its content, and then the child interviewed to relate back the content. The number of content references would be scored.

There were a considerable number of experimental variables requiring control in this approach: the rigorous use of standardized interview format, cues and probes; the exacting training of interviewers; the number of interviewers required (five to ten); and the reliability in determining whether the child's response qualified for getting the central idea of the content.

Nevertheless, one interview was conducted after a presentation of the story to a second grade class at the Butte Greely School. The youngster was most cooperative and her comments yielded some interesting insights into the story. However, since the researcher had determined that it would be desirable to work with small groups of students, since that reflects a real school situation, the interview technique with groups seemed unwieldy, and a paper and pencil approach with clearly defined answers preferable.
Analysis and Development of Instrument from the Text

Purpose. The purpose of this analysis was to determine all references to affective content in the text of the story and to posit these against references to nonaffective content.

Rationale. The rationale for this analysis was that the story text itself contains affective content which might be brought to the foreground of attention through one medium more than through another.

Procedure. The text of the story as it was read to the students was given to two adults who were told to underline any word or phrase that explicitly stated an emotional reaction. This would determine the construct validity of affective content delineated for instrumentation. While there was only a 60% overall concurrence of choices between the two adults, one adult simply underlined more content references than did the other. Of the references chosen by the first person, there was nearly 100% agreement by the second person.

The text was then divided into ten general sections such as "setting," "introduction of conflict," "beginning of the quest." From each of these sections, an affective reference was taken from the text as a complete thought and posited against another complete thought by which it was juxtaposed in the text. Most of these alternatives could be categorized as "action content." (See Appendix D - Instrument Directly from Text.) Nine such questions were developed this way.
In a second part of the instrument, seven questions were developed to probe possible inferences about affective content. Most of these inferences were taken from the responses to the "guided brainstorming" and were posited against affectively neutral or affectively different (e.g., opposite) content. Finally, five factual recall questions were included for a total of 21 questions.

Prepilot. Initial piloting with a group of students indicated that using full length sentences directly from the text placed undue strain on the children's attention span. They had just finished listening to the entire story: being administered the instrument was almost like listening again to the story. For that reason, the textual language in the instrument was compressed (condensed) as much as possible while trying to retain the authenticity of the language. (See Appendix D - Instrument Directly from Text.)

Specific Purposes. The researcher was primarily interested in determining the following, which if it proved fruitful would be refined in a final instrument:

1) The feasibility of administering this type of instrument to third grade children.

2) Some cursory determination of the instrument's reliability.

3) Some determination of whether the instrument could yield meaningful data.
Results of the Prepilot. A third grade class of twenty five Webster Garfield students was read the story and administered the instrument immediately afterwards. Response choices (e.g., affective versus action) were tallied for all questions. Although the instrument required reading ability, the questions were read aloud to the students. There was no apparent problem with keeping the children's interest throughout the administration.

The researcher had intended to readminister the instrument, using a test/retest design, in three weeks to determine reliability, i.e., stability. However, an intervening illness resulted in a lapse of nearly three months from test to retest. Only ten students were used for the retest. Reliability results are shown below. They were recorded as simple percentages of identical choices following a precedent established by Meringoff (1978) in which percentage of same choices between independent raters was used to determine reliability of observations. For example, in Part Three all of the students responded to each question identically to the way they responded on the first administration.

Total Percentage Same Responses Overall = 95.49%
Total Percentage Same Responses Part I (Affective/Other) = 89.88%
Total Percentage Same Responses Part II (Inferences) = 94%
Total Percentage Same Responses Part III (Factual Recall) = 100%

Results of prepiloting this prototype indicated the following to the researcher:
Such an instrument had construct validity as types of content were operationally defined and analyzed by adults. It would be feasible to administer this type instrument with third grade children without placing undue stress or demands on their attention. Finally, such an instrument would have reliability (stability over time) and potential for yielding meaningful data when comparing scores of three different modes of presentation.

Methodology

Preparation of Story Presentation and Sound Slide Show

A storyteller was selected for the two live presentation modes and for narrating the sound slide show. The individual was experienced in theatre productions and presentations with children.

In preparing the presentation, the storyteller was coached and monitored by the researcher. The individual memorized the text of the story for the presentations. She had access to the text to insure as identical presentations as possible.

The slide show was prepared in final format using a taped narration by the storyteller congruent with the other presentations and following the procedure used in its development.

Story Analysis and Development of the Instrument

The analysis of the story for operationally defined content was based on Meringoff's precedence of story analysis (1978). However, a
three person panel and a regional language arts expert were used instead of a single individual. 3

Three kinds of content--affective, descriptive and action--were identified. Panel members were instructed to read the story through once for familiarization and then mark all phrases or clauses that clearly fit the affective content criterion. Then they were to identify an action or descriptive phrase or clause juxtaposed near the affective content.

A unanimously agreed upon phrase would automatically be included in the instrument. Content items on which there was not unanimous agreement and other items selected by the researcher were resubmitted a second and third time as follows. The text was positioned alongside the phrase to be identified so the context was available. Panel members were instructed to label the specific content as it was operationally defined. A two out of three agreement between panel members qualified the item for inclusion.

The instrument was then developed as follows.

**Part I** - Sixteen questions were included to determine children's perceptions of salient content, affective as opposed to nonaffective. Affective references as operationally defined and determined by the panel were posited against nonaffective references. As with the prepilot instrument, these textual references were condensed. The children were asked to identify which "seemed most important."

**Part II** - This section determined children's inferences about the story content and included sixteen items which were based mostly
on the brainstormed responses completed during the prepilot phase. Students were able to choose one of two inferences or the third option of "I don't know."

Part III - Sixteen true and false items were taken from each part of the story to determine factual recall of content.

The content items for Part I and the entire instrument were submitted to a regional expert in the field of language arts for verification of the construct validity of the items in the instrument.

Population and Sampling Procedures

The population from which the sample was drawn was that group identified as third grade students attending regular classes in three of the nine elementary schools in the Butte Public School System, School District Number One, during the school year 1983-1984. At the end of the 1982-1983 school year, three elementary schools were closed and much of the city redistricted. Of the three schools used in this study--Margaret Leary, Longfellow and Kennedy--Kennedy was more affected than any other by the redistricting since it absorbed nearly the entire Blaine population when it was closed. Margaret Leary was affected in a different manner as it became the site of one of the three centralized kindergartens.

Standardized achievement scores from School District Number One's testing program--Stanford Achievement Test, Form E--(since that data was available fall 1983) were compared to determine if these students were comparable. Total reading, listening and listening comprehension scores were used. Data from Kennedy and the closed Blaine School were assessed together. The majority of the scores were in the same or
adjacent stanine bands and were verified by the District Curriculum Director$^4$ as representing similar populations. Scores from the other grade levels were also looked at to consider overall similarity of school populations (see Appendix D).

Third grade was preferred to other grade levels because of the length and complexity of the story, because the instrument required some reading ability and because it was judged that above the third grade there would be additional risk of the students' sophistication with story materials and media influencing their responses to the story.

From each of the three schools, a random sample of fifteen third grade boys and fifteen third grade girls was drawn. In one case, the entire population of fourteen third grade boys was used. The randomized selection was accomplished through the use of a computer program written especially for this purpose by the computer coordinator for Butte School District Number One and verified by a regional expert in the field of computer education.$^5$ Substitutes were also randomly chosen to replace absentees.

Total number of subjects were ninety, thirty per treatment group. This sample size was based on Spatz and Johnson's (1981) recommendation that thirty is a sufficiently large number for the sampling distribution of means to approach a normal curve, although they state that "if the population itself is symmetrical the sampling distribution of the mean will be normal with a sample size much smaller than thirty" (1981: 149).
Each school was given each kind of treatment group—sound slide show, book and reader, and storyteller—and each treatment was composed of five boys and five girls each, except one in which there were six girls and one boy. Spache and Spache (1977) have cited research both in reading readiness and reading achievement which indicate the superiority of girls over boys in this language arts skill. While these differences may be due to cultural and teacher expectations, it was decided this possible variation should be minimized in the present study. Therefore, in as much as possible, treatment groups contained an equal number of boys and girls.

Whereas Meringoff (1978) presented the reader version and televised version individually, it was judged that part of the condition desirable for the storytelling and the book and reader setting was the shared experience. For this reason, groups of ten were used for the presentations.

Pilot of the Instrument

A pilot of the instrument was conducted on two Webster Garfield School third grade classes (a total of forty-two students), which were identified by the same criterion of standard achievement scores as used for the groups from the three schools in the study. The book and reader version only was used in the pilot. During the pilot, the instrument's reliability, i.e., stability over time, as defined by Sax (1980), was determined. Procedures for the experimental treatment and for administering the data gathering instrument were also established.

A test-retest design suggested by Ferguson (1981) to determine the instrument's reliability was applied using a Pearson product-moment
correlation coefficient as suggested by Guilford (1973) and approximately a three-week intervening interval.

Initial results during the pilot phase indicated the necessity of determining whether or not a higher reliability could be obtained if the experimenter were the storyteller. A similar pre and post test design was used with three additional third grade classes from two other schools. An examination of the data obtained from these three additional groups indicated not enough variation in consistency of response to warrant a statistical analysis.

Initial results of the piloting also indicated student responses on the post test were influenced by their first exposure to the story presentation. Since it was necessary to determine a reliability level on the instrument itself, as opposed to student responses, two additional steps were incorporated into the design.

First, the third grade pilot students had the instrument administered again, silently, with no story treatment at all. Second, since reading ability could also contaminate student responses in this retest design, a class of seventeen sixth grade students from the same school was administered the story to read silently. An interval of one week was used in the retest design to minimize intervening contaminating variables. Following this interval, the students were administered the instrument to read and complete silently, with no story treatment. Results from this design were used to obtain reliability coefficients for Parts One and Three. Results from the various configurations were reported and discussed for Part Two. Altogether, six different groups
of students were used during the pilot phase, which was completed from January through March of 1984.

Experimental Treatment and Control for Contaminating Variables

The subjects were randomly assigned to one of the three treatment groups in which there were equal numbers of girls and boys except for one group, where an additional girl was required. Essentially, the treatments consisted of each group being presented with one of the three versions under as similar conditions as possible. Instructions were provided at the beginning explaining that this was a project to learn what the children think about stories (see Appendix C). After the presentation was completed, students were allowed to stand up and stretch to diminish fatigue, and questions about what the students thought of the story followed. Piloting indicated the necessity of creating as relaxed and spontaneous an atmosphere as possible for the effectiveness of the presentations. This was also necessary because both the experimenter and the reader/storyteller were unfamiliar to the children.

Contaminating variables were treated in the following manner:

1) Two letters of instruction were sent to the teachers, one general explanatory letter a few weeks ahead of time and one letter of specific instructions several days ahead of the presentations. Building principals had discussed the project ahead of time with the involved personnel.

2) Teachers were requested to mention the story project ahead of time to alert students to the schedule change and to request students not to talk about the story experience
until the end of the project. Because of a longer time for two of the schools from receipt of the instructions to the actual project, teachers in those two buildings were asked again to remind students not to discuss the project.

3) The same room was used in each building for all three presentations except for one session which had to be moved to avoid an unexpected interruption.

4) Students were asked to be seated comfortably on the floor.

5) The presentations for each specific school were given on the same day in the morning. The order of treatment groups was the same.

6) The same instructions were given each group. Piloting established the necessity of creating comfortable rapport with the students. For that reason, instructions were explained rather than read verbatim, and as much eye contact as possible was maintained throughout. Any deviations in the instructions were noted in a log (see Appendix C).

7) The storyteller and the book and reader presentations were standardized as much as possible by the storyteller.

Data Collection

After completing the presentations, the subjects were administered the instrument. The storyteller was not visible during these presentations. The students were allowed to stand and stretch to diminish fatigue and to allow for passing out materials. The groups were given the same instructions in a similar manner to the initial instructions. Any variations were noted in the log (see Appendix C).
The experimenter read aloud the questions and choices twice as the students read silently. Extreme care was taken to insure a standardized, nonbiased reading of the questions. The subjects were asked to check their papers to make sure they had answered all questions.

Research Questions and Statistical Hypotheses

1. What are the findings of media research in the last three decades relevant to understanding the effect of media on information coding and information potential?

2. Are there indications that a sound slide presentation, a reader and picture book presentation, and a storyteller presentation bring different content to the foreground of attention? This question is discussed in the review of the literature, the discussion of the findings of this study and the conclusion and recommendations.

3. Are there indications that affective content as opposed to nonaffective content is more effectively brought to the foreground of attention by any one of the three named modes of presentation? This question is discussed in the review of the literature, the discussion of the findings of this study and the conclusion and recommendations.

4. Are there indications that children make more or fewer inferences about story content based on the mode of presentation? This question is discussed in the review of the literature, the discussion of the findings of this study and the conclusion and recommendations.
5. Are there indications that children make different inferences about story content based on the mode of presentation? This question is discussed in the review of the literature, the discussion of the findings of this study and the conclusion and recommendations.

6. Are there indications that children's recall of factual material is based on the mode of presentation they have experienced? This question is discussed in the review of the literature, the discussion of the findings of this study and the conclusion and recommendations.

The following null hypotheses were treated statistically:

1. \( H_0 \): There is no difference in third grade children's perception of the type of content, specifically, affective content as opposed to nonaffective, that is brought to the foreground of their attention by three different modes of presentation: a storyteller, a book and reader, and a sound slide show.

2. \( H_0 \): There is no difference in the number of inferences about story content made by third grade children exposed to three different modes of story presentation: a storyteller, a book and reader, and a sound slide show.

3. \( H_0 \): There is no difference in individual inferences made about story content by third grade children exposed to three different modes of story presentation: a storyteller, a book and reader, and a sound slide show.
4. \( H_0 \): There is no difference in third grade children's recall of factual material based on mode of presentation—a storyteller, a book and reader, and a sound slide show.

Description of Independent and Dependent Variables

The design of this study incorporated one independent variable, mode of presentation, with three levels: storyteller, book and reader, and sound slide show. There were four dependent variables: 1) perception of salient content, affective as opposed to nonaffective; 2) number of inferences about content; 3) choice of inferences about content; and 4) recall of factual content.

Instrumentation and Analysis of the Data

The instrument was composed of three subsections which were statistically analyzed individually.

The first subsection yielded a number for each subject of affective content choices in the foreground of attention. These were totaled and a mean for each treatment group calculated. A one-way analysis of variance was applied and statistical significance obtained and reported. No post hoc comparison tests were warranted by the obtained statistical significance, but an individual t test was applied for two group means.

The second subsection, inferences about story content, was treated two ways: response choices one and two were totaled together and compared to response choice three, i.e., "I don't know." A total of response choices per individual were calculated and a mean per treatment group obtained. A one-way analysis of variance was applied
and statistical significance obtained and reported. Additionally, a chi square test of independence was applied to each individual question in the second subsection.

The third subsection yielded for each subject a number of correct factual recall choices. These were totaled and a mean for each treatment group calculated. A one-way analysis of variance was applied and statistical significance obtained and reported. No post hoc comparison tests were warranted by the obtained statistical significance, but individual t tests were applied to two sets of the group means.

Appropriate descriptive statistics were also calculated for the subsections and reported. Statistics gathered during the pilot phase, including Pearson product-moment correlation coefficients as a measure of the instrument's reliability, have been reported along with appropriate descriptive statistics. Calculations were made using a computer program, SPSS, Statistical Package for Social Sciences (Nie, 1975), available through Montana State University. All research, prepilot to completion, was done under the supervision of both the research supervisor and the major advisor from this researcher's doctoral committee.

Organization of Data

The data gathered during the pilot and the experimental phases was organized and presented in the following manner.

Pilot Data from Third Grade Classes

Parts one, two and three of the instrument were statistically treated and presented separately.
Descriptive statistics for Part One--affective content choices to nonaffective content choices--were recorded for pretest, post test and post-post test. Pearson r, correlation coefficient, for pretest to post test, post-post test to pretest, and post-post test to post test, as well as all probability levels and degrees of freedom were reported. An individual t test was also reported.

Descriptive statistics for Part Two--number of inferences--were recorded. Inference to no-inference choice was compared overall using a one-way ANOVA and individually with chi squares. Chi square test of independence on each question was also recorded pretest to post test, post-post test to pretest, and post-post test to post test. Probability levels and degrees of freedom were reported.

Descriptive statistics for Part Three--factual recall--were recorded for pretest, post test and post-post test. Pearson r, correlation coefficient, for pretest to post test, post-post test to pretest, and post-post test to post test, as well as all probability levels and degrees of freedom were reported. Two individual t tests were also reported.

Pilot Data from Sixth Grade Class

Parts One, Two and Three of the instrument were statistically treated and presented separately.

Descriptive statistics for Part One--affective content choices to nonaffective content choices--were recorded for pretest and post test. Pearson r, correlation coefficient, for pretest to post test as well as probability levels and degrees of freedom were reported.
Descriptive statistics for Part Two--number of inferences--were recorded for pretest and post test. Inference to no-inference choice was compared using a one-way ANOVA. Fisher exact tests and chi squares were used on individual inference questions. Phi and contingency coefficient were also reported.

Descriptive statistics for Part Three--factual recall--were recorded for pretest and post test. Pearson r, correlation coefficient, for pretest to post test as well as probability levels and degrees of freedom were reported.

Experimental Treatment Data--Part One: Affective and Nonaffective Content Choices

Descriptive statistics, including mean number of affective choices per treatment group--storyteller, book and reader, and sound slide show--were recorded. A one-way analysis of variance was applied and probability level and degrees of freedom reported. An individual t test between one set of group means was reported.

Experimental Treatment Data--Part Two: Inferences

Descriptive statistics were reported. These included a mean number of responses per treatment group--number of inferences compared to choice of no inference. A one-way analysis of variance was applied and probability level and degrees of freedom reported. An individual chi square was reported as warranted for one question. Chi square tests of independence and Fisher exact tests, comparing inference choices by treatment group--storyteller, book and reader, and sound slide show--were calculated and reported.
Experimental Treatment Data--Part Three: Factual Recall

Descriptive statistics, including mean number of correct choices per treatment group--storyteller, book and reader, and sound slide show--were recorded. A one-way analysis of variance was applied and probability level and degrees of freedom reported. Individual t tests between two sets of group means were reported.

Permissions

All required permissions, including permission from Dial Press to use the book, The Wild Swans, and permission from School District Number One personnel, were obtained prior to conducting the study.

Summary

The purposes of this study were 1) to discuss the findings of media research relevant to understanding the effect of media on information potential and cognitive processes; 2) to determine whether or not there are indications that a storyteller presentation, a picture book and reader presentation, and a sound slide show bring different content to the foreground of attention; 3) to determine whether or not there are indications that affective content as opposed to nonaffective content is more effectively brought to the foreground of attention by any one of the three named modes of presentation; 4) to determine whether children make quantitatively different inferences based on the mode of story presentation; 5) to determine whether children make different inferences based on the mode of presentation; and 6) to determine if children's recall of factual material is different based on the mode of presentation.
A fairytale, The Wild Swans, by Hans Christian Andersen, adapted by Amy Erlich and Susan Jeffers (Andersen, 1981), was selected for this study on the criteria of genre, suitability for storytelling, comparability, quality of the illustrations, size of the book, and authenticity of the material. The text of the story was shortened to make it more suitable for storytelling with third grade children.

Preliminary research indicated to the researcher the following methodology for accomplishing the purposes of the study: an analysis of the text of the story yielding types of content as operationally defined was completed using a three-stage procedure and a panel of three judges. The judges were asked to determine operationally defined content, and those content items for which there was not unanimous agreement were re-evaluated by the panel.

A three-part instrument was developed based on the prototype instrument from the preliminary research, the story analysis and the student brainstormed analysis from the preliminary research. Part One of the instrument determined whether affective or nonaffective content was in the foreground of attention. Part Two determined an overall number of inferences and differences on individual inferences. Part Three determined recall of factual material.

A sound slide show consisting of one hundred nine 35 mm slides of illustrations from the book was developed by the writer after viewing and comparing techniques for commercially produced filmstrips of children's literature. The storyteller, who was also the reader and the narrator for the slide show, was coached by the researcher.
A random sample of ninety third grade students from three schools in the Butte School District Number One, 1983-1984, was selected for the study. Students were randomly assigned to one of the three treatment groups. A pilot of the experimental treatment and the instrumentation was administered to two third grade classes from a different, but similar, school. The story text was also read silently and the questions answered by a group of sixth grade students. A test-retest design incorporating Pearson product-moment correlation coefficient on the instrument was used to determine reliability.

For the actual study, the three experimental story treatments were presented in a manner to minimize the effect of contaminating variables. The instrument was administered and the data collected, tabulated and analyzed. A one-way analysis of variance was used to analyze the three subsections of the instrument and chi square test of independence were applied to individual questions in the second subsection.
Chapter 3 Endnotes

1. William Nikola, former second grade teacher at Irving School, Bozeman, Montana, and current teaching assistant, Department of Elementary Education, Montana State University, Bozeman, Montana.

2. Bonnie Stefanic, Community Coordinated Child Care, Butte, Montana.

3. The panel was composed of language arts and/or English teachers from the Butte School District Number One, 1983-1984: Bill Mattioli, elementary reading teacher; Shelia Youngblood, Accelerated Learners Program language arts teacher; and Annette Giop, junior high school English teacher. Dr. Gerald Sullivan, Professor, Reading Education, Department of Elementary Education, Montana State University, Bozeman, Montana, was the regional language arts expert.

4. Dr. Tim Sullivan, Curriculum Director for Butte School District Number One, Butte, Montana.

5. The program was written for an Apple IIe computer by Don Plessas, computer coordinator for the Butte School District Number One, and verified by Dr. Larry Ellerbruch, Associate Professor, Math Education, Department of Elementary Education, Montana State University.
CHAPTER 4

STATISTICAL ANALYSIS OF DATA

Introduction

This study was designed to determine if three comparable presentations of a story—a storyteller, a book and reader, and a sound slide show—brought the same content—affective, inference and factual—to the foreground of third grade children's attention. The study utilized a researcher designed instrument and small groups of students in an actual school setting.

Third grade students, determined as comparable, from three schools in the Butte School District Number One, were randomly assigned to one of three treatment groups and given the story presentations. Presentations were made to groups of ten, equally divided by sex as much as possible. The instrument was administered by the researcher immediately after the presentation.

Preliminary investigation required as background for this research, analysis of the story and development of the instrument, determination of comparable groups, determination of instrument reliability and experimental procedures and data collection were described in the preceding chapter of this study. The statistical data collected from this study is reported and analyzed in this chapter.
Organization of Chapter Four

Chapter 4 is organized around the presentation and discussion of the following:

I. Pilot Data

1. An overview of the pilot as it related to the concept of and determination of instrument reliability.

2. Third Grade Data. These data focused on determining the reliability of each subpart of the instrument.
   1) Part One - Affective Content. A Pearson r correlation coefficient was used to obtain a reliability coefficient: pretest to post test; pretest to post-post; post test to post-post.
   2) Part Two - Inferences. A chi square test of independence was used as a measure of reliability on each individual question: pretest to post test; pretest to post-post; post test to post-post.
   3) Part Three - Factual Recall. A Pearson r correlation coefficient was used to obtain a reliability coefficient: pretest to post test; pretest to post-post; post test to post-post.

3. Sixth Grade Data. These data also focused on determining the reliability of each subpart of the instrument.
   1) Part One - Affective Content. A Pearson r correlation coefficient was used to obtain a reliability coefficient: pretest to post test.
2) Part Two - Inferences. As a measure of reliability, a chi square test of independence for a 3 x 3 contingency table was used. A Fisher's exact test, phi, and correlation coefficient were used for the 2 x 2 tables.

3) Part Three - Factual Recall. A Pearson r correlation coefficient was used to obtain a reliability coefficient: pretest to post test.

II. Experimental Data

1. Part One - Affective Content. Descriptive statistics were reported and a one-way analysis of variance (ANOVA) was used to compare affective content choices among the treatment groups—book and reader, storyteller and sound slide show. A t test was also used to compare mean number of affective content choices between the book and reader and the storyteller modes.

2. Part Two - Inferences. Descriptive statistics were reported and a one-way ANOVA was used comparing the three treatment groups on inference or no-inference choice. A chi square test of independence was used to compare each specific inference question by mode—book and reader, storyteller and sound slide show.

3. Part Three - Factual Recall. Descriptive statistics were reported and a one-way ANOVA was used to compare correct responses among the treatment groups—book and reader, storyteller and sound slide show. A t test was also used to compare mean number of correct responses between the book and
reader and the storyteller modes, and the storyteller and the sound slide show modes.

Chapter 4 concludes with a summary.

Overview of the Pilot and Determination of Reliability

Data were gathered on two groups of third graders (forty students) to determine the instrument's reliability, i.e., stability over time, as defined by Sax (1980). A test-retest design was applied as suggested by Ferguson (1981). In the first application of the test-retest design, the story treatment (book and reader) was given both times. A three to four week intervening interval separated the sessions. An additional retest using no story treatment was applied after examining the results of the first sessions since the results indicated that the story treatment itself might be a contaminating factor in the retest situation. Approximately a month separated these latter sessions. Each subsection of the instrument was statistically treated separately.

Results of the three sets of data gathered from third graders did indicate that the story treatment in the retest situation was a contaminating variable. Additionally, students' reading level, since they were required to read the instrument, could mask reliability. The age of the third grade children made it too difficult to minimize these factors. Therefore, data had also been gathered on a class of seventeen sixth grade students. Since the purpose of the pilot was to determine the reliability of the instrument itself, it seemed appropriate to create a situation in which intervening variables that could mask reliability were minimized. Since both memory and forgetting are
forms of intervention, an attempt was made to balance these two, minimize the effect of reading level and eliminate the variables of storyteller effect and additional treatment. The sixth graders were asked to read the story silently and then respond silently to the instrument. A week later, the students were again administered the instrument silently. It was hoped that this form of the test-retest design would balance the period of time and testing situations that were discussed by Barr et al (1953) and Guilford (1965) as contributing to fluctuations in measures of reliability.

Third Grade Pilot Data

Part One - Affective Content

Part One of the instrument yielded for each subject a number of affective content choices in the foreground of attention. Data were collected on forty third graders to determine reliability of this subsection, i.e., stability as defined by Sax (1980). A Pearson product moment correlation coefficient (Pearson r) as suggested by Guilford (1973) was used in the treatment/test-treatment/retest design. A three to four week interval separated the sessions which were designated as pretest and post test. An additional testing (but no treatment) session was administered approximately a month later. This was designated as post-post test. A Pearson r was calculated pretest to post test, pretest to post-post and post test to post-post.

Results, pretest to post test, with an n of 40, yielded a Pearson r correlation coefficient = .4826 with an associated probability of p<.001. Results, pretest to post-post, with an n of 35, yielded a
Pearson r correlation coefficient = .3342 with an associated probability of \( p \leq .025 \). Results, post test to post-post, with an \( n \) of 33, yielded a Pearson r correlation coefficient = .5165 with an associated probability of \( p \leq .001 \). See Table 1.

Williams (1979) has cited Guilford (1956) as suggesting a correlation of .4826 to represent a moderate correlation and Guilford (1965) has emphasized that the correlation is always relative to the situation under which it is obtained and must be interpreted in light of those circumstances. However, in practice, reliability coefficients are usually expected to be in the upper brackets of \( r \), i.e., .70 to .98, a criterion not reached by these correlation coefficients. The noticeable drop in the correlation coefficient, pretest to post-post (\( r = .3342 \)), as contrasted with the higher correlation coefficient, post test to post-post (\( r = .5165 \)), in which no treatment was administered, post-post, indicated a contamination effect of the additional treatment which likely affected the correlation coefficient. An attempt was made to control for this and other factors in the design using sixth grade students, the results of which are reported further in this chapter.

<table>
<thead>
<tr>
<th></th>
<th>Pretest to Post Test</th>
<th>Pretest to Post-Post</th>
<th>Post Test to Post-Post</th>
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</thead>
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<tr>
<td>( n )</td>
<td>40</td>
<td>35</td>
<td>33</td>
</tr>
<tr>
<td>( r )</td>
<td>.4826</td>
<td>.3342</td>
<td>.5165</td>
</tr>
<tr>
<td>( p \leq )</td>
<td>.001</td>
<td>.025</td>
<td>.001</td>
</tr>
</tbody>
</table>

Terms: \( n \) = number of students  
        Pearson \( r \) = correlation coefficient  
        \( p \) = associated probability
Part Two - Inferences

Part Two of the instrument yielded a specific inference choice on sixteen separate items. Since the data in this subsection were nominal data, a chi square test of independence, as suggested by Spatz and Johnston (1981) was used as a measure of reliability, i.e., stability, on each individual question. This data yielded a set of two by three contingency tables with an expected frequency of less than five in at least fifty percent of the cells of each question. Spatz and Johnston (1981) and Guilford (1965) have suggested that when expected frequencies are small, frequency cells may be combined, provided the combinations are logical. A different option, when combinations are not logical, could be discarding one of the alternatives provided few chose the alternative. Since inference choice three, i.e., "I don't know," was a consistent option and seldom chosen, it seemed prudent to discard that alternative for these data. This reduced the sets to two by two contingency tables.

Results of the chi square have been reported two ways: with the Yates' correction when expected frequency in one of the cells is five or less, as suggested by Spatz and Johnston (1981), and without the Yates' correction, as suggested by Ferguson (1981). Ferguson has reported studies that indicate the Yates' correction is unduly conservative for data which conform to random and mixed models. He suggests that use of the Yates' correction will lead to too few statistically significant results, and that the chi square test without the correction will provide a reasonably accurate protection against Type I
errors when the number of subjects is greater than or equal to eight (1981).

Results of pretest to post test chi square analysis indicated four inference questions significant at $p < .05$ when the Yates' correction was applied, and six inference questions significant at $p < .05$ without the Yates correction.

Results of pretest to post-post chi square analysis indicated no inference questions significant at $p < .05$ when the Yates' correction was applied, and no inference questions significant at $p < .05$ without the Yates' correction.

Results of post test to post-post chi square analysis indicated two inference questions significant at $p < .05$ when the Yates' correction was applied, and five inference questions significant at $p < .05$ without the Yates' correction. These results were used as part of the measures of reliability on the inference questions and were necessary to interpret results of the final data. See Tables II and III.

Part Three - Factual Recall

Part Three of the instrument yielded a number of correct factual recall items. Data to determine reliability, i.e., stability, of this subsection were collected pretest to post test, pretest to post-post, and post test to post-post, using a Pearson $r$ correlation coefficient as in subsection one and the same intervening time intervals.

Pearson $r$ correlation coefficient, pretest to post test, with an $n$ of 40, was $r = .4963$ with an associated probability of of $p < .001$. Pearson $r$ correlation coefficient, pretest to post-post, with an $n$ of 35, was $r = .3671$ with an associated probability of $p < .015$. Pearson $r$
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<th>Inference Question</th>
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<th>Pretest to Post-Post</th>
<th>Post Test to Post-Post</th>
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<td>15</td>
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<td>4.85917</td>
<td>.028</td>
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</tbody>
</table>

Terms:  
- n = number of students  
- Inference question = specific inference question from Part II of instrument  
- Raw chi square = chi square test of independence without Yates' correction  
- p< = associated probability  
- df = degrees of freedom  
- -- = SPSS does not compute statistics when the number of non-empty rows or columns is one. Nonsignificant at p<.05 as determined by hand calculation.
### Table III: Third Grade Pilot Inference Questions - Chi Square with Yates' Correction

<table>
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<tr>
<th>Inference Question</th>
<th>Pretest to Post Test</th>
<th>Pretest to Post-Post</th>
<th>Post Test to Post-Post</th>
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<td>Raw Chi Square</td>
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<td>--</td>
</tr>
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**Terms:**
- \( n \) = number of students
- Inference question = specific inference question from subpart II of instrument
- Corrected chi square = chi square test of independence using Yates' correction
- \( p \) = associated probability
- \( df \) = degrees of freedom
- -- = SPSS does not compute statistics when the number of non-empty rows or columns is one. Nonsignificant at \( p < .05 \) as determined by hand calculation.
correlation coefficient, post test to post-post, with an n of 33, was
\( r = 0.5492 \) with an associated probability of \( p < 0.000 \), as reported by
SPSS, which carries results to four decimal places. These reliability
coefficients were not considered acceptable and an attempt was made
to control for possible contaminating variables in the design reported
in the next section. See Table IV.

<table>
<thead>
<tr>
<th></th>
<th>Pretest to Post Test</th>
<th>Pretest to Post-Post</th>
<th>Post Test to Post-Post</th>
</tr>
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<tbody>
<tr>
<td>( n )</td>
<td>40</td>
<td>35</td>
<td>33</td>
</tr>
<tr>
<td>( r )</td>
<td>0.4963</td>
<td>0.3671</td>
<td>0.5492</td>
</tr>
<tr>
<td>( p \leq )</td>
<td>0.001</td>
<td>0.015</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Terms: \( n \) = number of students
Pearson \( r \) = correlation coefficient
\( p \) = associated probability

Pilot Data - Sixth Grade Students

A treatment/test-retest design was applied to a class of seventeen
sixth grade students attending the same school as the pilot third
graders. To minimize the effects of reading level and nature of the
delivery, the story treatment consisted of the students reading the
text silently and responding silently to the questions. An interval of
a week separated the test from retest, a period of time determined to
be a balance between the masking effects of memory and of forgetting.
These sessions were designated as pretest and post test.
Part One - Affective Content

Part One of the instrument yielded for each subject a number of affective content choices in the foreground of attention. A Pearson correlation coefficient, calculated pretest to post test, was used as a measure of reliability. Results calculated with an n of 17 yielded a Pearson r = .6569 with an associated probability of p<.002. See Table V. Though modest, this reliability coefficient indicates improved control of the contaminating variables which seemed influential in the design with third graders and is indicative of a moderate correlation.

Table V. Sixth Grade Affective Content Choices
Pearson r Correlation Coefficient

<table>
<thead>
<tr>
<th></th>
<th>Pretest to Post Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>17</td>
</tr>
<tr>
<td>r</td>
<td>.6569</td>
</tr>
<tr>
<td>p≤</td>
<td>.002</td>
</tr>
</tbody>
</table>

Terms:  
n = number of students  
Pearson r = correlation coefficient  
p = associated probability

Part Two - Inferences

Part Two of the instrument, yielding a specific inference choice on sixteen items, was treated both as a 3 x 3 contingency table, including choice "3 - I don't know," and a 2 x 2 contingency table, omitting choice "3." Data were reported both ways because of the small number of cases. Chi square was reported for the 3 x 3 contingency table. SPSS applies a Fisher's two-tailed exact test for fewer than
twenty-one cases. It is interpreted directly, i.e., the probability of getting that distribution of frequencies under the null hypothesis of no relationship is that specific figure (Schutte, 1977). Chi square and Fisher exact test figures were reported as measures of reliability. Some scores may be spurious and must be cautiously interpreted because of small cell frequency.

Phi and a contingency coefficient were also reported for the 2 x 2 tables. Both are measures of the strength of a relationship and are based on chi square. Phi corrects for the fact that the chi square value is directly proportional to the number of cases. It assumes a value of zero when no relationship exists and a value of +1 when variables are perfectly related. Contingency coefficient assumes a minimum value of zero and a maximum value of .707 for a 2 x 2 table (Nie et al., 1980). See Table VI.

Results of the chi square analysis indicated four inference questions with an associated probability of $p < .05$. See Table VII. Results of the Fisher's exact test indicated one inference question with an associated probability of $p < .05$. See Table VI. These results, used as measures of reliability, in conjunction with the third grade data, must be cautiously interpreted because of small cell frequencies.

Part Three - Factual Recall

Part Three of the instrument yielded for each subject a number of correct factual recall items. A Pearson $r$ correlation coefficient, calculated pretest to post test, was used as a measure of reliability. Results calculated with an $n$ of 17 yielded a Pearson $r = .6570$ with an associated probability of $p < .002$. See Table VIII. Though modest,
this reliability coefficient indicates improved control of the contaminating variables which seemed influential in the design with third graders and is indicative of a moderate correlation.

Table VI. Sixth Grade Inference Questions Pretest to Post Test—Choice "3" Omitted (based on 2 x 2 Contingency Table)

<table>
<thead>
<tr>
<th>Inference Question1</th>
<th>n</th>
<th>Fisher's Exact Test</th>
<th>Phi</th>
<th>Contingency Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>15</td>
<td>.13333</td>
<td>.68139</td>
<td>.56309</td>
</tr>
<tr>
<td>4</td>
<td>7</td>
<td>.28571</td>
<td>.64550</td>
<td>.54233</td>
</tr>
<tr>
<td>5</td>
<td>10</td>
<td>.2000</td>
<td>.6667</td>
<td>.55470</td>
</tr>
<tr>
<td>8</td>
<td>12</td>
<td>.54545</td>
<td>.35355</td>
<td>.33333</td>
</tr>
<tr>
<td>9</td>
<td>12</td>
<td>.18182</td>
<td>.57735</td>
<td>.5000</td>
</tr>
<tr>
<td>11</td>
<td>13</td>
<td>.15385</td>
<td>.67700</td>
<td>.56061</td>
</tr>
<tr>
<td>12</td>
<td>15</td>
<td>.13333</td>
<td>.68139</td>
<td>.56309</td>
</tr>
<tr>
<td>14</td>
<td>11</td>
<td>.15152</td>
<td>.54167</td>
<td>.47628</td>
</tr>
<tr>
<td>15</td>
<td>13</td>
<td>.00466</td>
<td>.85391</td>
<td>.64937</td>
</tr>
<tr>
<td>16</td>
<td>16</td>
<td>1.0000</td>
<td>.14907</td>
<td>.14744</td>
</tr>
</tbody>
</table>

1Inference questions 1, 2, 6, 7, 10, and 13 are omitted as SPSS does not compute statistics when the number of non-empty rows or columns is one.

Terms: n = number of cases

Fisher's Exact Test = two-tailed test. Figure interpreted directly as associated probability. (SPSS applies with 2 x 2 table, n<21.)

Phi = measure of strength of relationship based on chi square. Values range from no relationship, "0," to "+1."

Contingency coefficient = measure of strength of relationship based on chi square. Values range from "0" to .707 for a 2 x 2 table.
Table VII. Sixth Grade Inference Questions Pretest to Post Test - Includes Choice "3"

<table>
<thead>
<tr>
<th>Inference Question</th>
<th>n</th>
<th>Chi Square</th>
<th>p</th>
<th>df</th>
<th>Fisher's Exact Test, 2-Tailed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>2</td>
<td>17</td>
<td>15.87245</td>
<td>.003</td>
<td>4</td>
<td>.21891</td>
</tr>
<tr>
<td>3</td>
<td>17</td>
<td>5.23983</td>
<td>.264</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>17</td>
<td>8.27513</td>
<td>.082</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>17</td>
<td>4.41558</td>
<td>.353</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>17</td>
<td>7.55556</td>
<td>.109</td>
<td>4</td>
<td>.94118</td>
</tr>
<tr>
<td>7</td>
<td>17</td>
<td>7.96875</td>
<td>.019</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>17</td>
<td>7.96875</td>
<td>.019</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>17</td>
<td>.14167</td>
<td>.932</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>17</td>
<td>6.54815</td>
<td>.162</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>17</td>
<td>10.83750</td>
<td>.029</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>17</td>
<td>.9444</td>
<td>.624</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

\(^1\)Fisher's exact test, 2-tailed, is reported instead of chi square, when contingency table is reduced to 2 x 2 because of student response pattern. Probability level is interpreted directly.

Terms:
- \(n\) = number of cases
- Inference question = specific inference question from subpart II of instrument
- Chi square = chi square test of independence
- \(p\) = associated probability
- df = degrees of freedom
- -- = SPSS does not compute statistics when number of non-empty rows or columns is one. Nonsignificant at \(p < .05\) as determined by hand calculator.
Table VIII. Sixth Grade Factual Recall Pearson r Correlation Coefficient

<table>
<thead>
<tr>
<th></th>
<th>Pretest to Post Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>17</td>
</tr>
<tr>
<td>r</td>
<td>.6570</td>
</tr>
<tr>
<td>p&lt;</td>
<td>.002</td>
</tr>
</tbody>
</table>

Terms:  
- \textit{n} = number of students  
- Pearson \textit{r} = correlation coefficient  
- \textit{p} = associated probability

Experimental Data

Overview

A sample of ninety third grade students from three schools in Butte School District Number One were randomly assigned to one of three experimental story treatment groups--book and reader, storyteller, and sound slide show. Treatment groups consisted of ten students each, equally divided by sex as much as possible. Students were administered the story treatment and the instrument under as similar conditions as possible, given the actual school setting. Total number of students receiving each treatment was thirty.

The instrument used to collect the data was designed to determine whether each of the three modes of presentation brought different content--affective or nonaffective, inference, and factual--to the foreground of attention. Results of the data obtained from the experimental treatment are presented in the following section.
Part One - Affective Content

This subsection yielded for each subject a number of affective content choices in the foreground of attention. These were totaled for each treatment group—book and reader, storyteller, and sound slide show—and a mean for each treatment group calculated. The book and reader mode yielded a mean number of affective responses, $\bar{x} = 10.20$, with a standard deviation of 2.4969. The storyteller mode yielded a mean number of affective responses, $\bar{x} = 9.2333$, with a standard deviation of 2.1764. The sound slide mode yielded a mean number of affective responses, $\bar{x} = 9.3667$, with a standard deviation of 2.6325. See Table IX.

Table IX. Affective Content Choices by Story Treatment - Descriptives

<table>
<thead>
<tr>
<th>Mode</th>
<th>n</th>
<th>$\bar{x}$</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Book and Reader</td>
<td>30</td>
<td>10.2000</td>
<td>2.4969</td>
</tr>
<tr>
<td>Storyteller</td>
<td>30</td>
<td>9.2333</td>
<td>2.1764</td>
</tr>
<tr>
<td>Sound Slide Show</td>
<td>30</td>
<td>9.3667</td>
<td>2.6325</td>
</tr>
</tbody>
</table>

Terms: $n =$ number of students  
$\bar{x} =$ mean number of affective responses  
Standard deviation = standard deviation for the mean  
Mode = story treatment

A one-way ANOVA was applied comparing these means to test the null hypothesis that there is no difference in third grade children's perceptions of affective content as opposed to nonaffective content brought to the foreground of their attention by the three modes of presentation (book and reader, storyteller and sound slide show).
Results of the ANOVA yielded an $F$ ratio = 1.380 with an associated probability level of $p < .257$ with two degrees of freedom. In view of these results, the null hypothesis was accepted and post hoc comparison tests were not warranted. See Table X.

Table X. Affective Content Choices by Story Treatment - ANOVA

<table>
<thead>
<tr>
<th>F Ratio</th>
<th>p&lt;</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.380</td>
<td>.257</td>
<td>2</td>
</tr>
</tbody>
</table>

One-way ANOVA comparing mean number of affective content choices by mode.

Terms: $F$ ratio = statistic calculated to determine statistical significance for ANOVA  
$p$ = associated probability  
df = degrees of freedom

An individual $t$ test was applied comparing the mean of the book and reader treatment to the mean of the storyteller treatment since the book and reader mean was outside the 95 percent confidence interval of the storyteller mean. Results of the $t$ test yielded a $t$ value = 1.60 with a two-tailed associated probability of $p < .115$ with 58 degrees of freedom. These results could not be considered to indicate there was a statistically significant difference between these two means at a probability level, $p < .05$. See Table XI.
Table XI. Students' t Test - Book and Reader/Storyteller Comparison x Number Affective Content Choices

<table>
<thead>
<tr>
<th></th>
<th>Book &amp; Reader</th>
<th>Storyteller</th>
<th>t</th>
<th>p</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>10.2000</td>
<td>9.2333</td>
<td>1.60</td>
<td>.115</td>
<td>58</td>
</tr>
</tbody>
</table>

Terms: \( \bar{x} \) = mean number of affective content choices
\( t \) value = students' t statistic calculated to determine statistical significance of \( \bar{x} \) differences
\( p \) = associated probability
\( df \) = degrees of freedom

Part Two - Inferences

Data from the second subsection of the instrument were used to test two null hypotheses: 1) that there is no difference in the number of inferences about story content made by third grade children exposed to the three different modes of story presentation and 2) that there is no difference in individual inferences about story content made by third grade children exposed to the three modes of story presentation.

To test the first of these null hypotheses--that of no difference in the number of inferences about story content--the sets of 3 x 3 contingency tables yielded by the data were collapsed into 2 x 3 tables. This was accomplished by combining response choices one and two together and comparing them to response choice three, i.e., "I don't know," which was considered as the "no inference" choice. Total response choices per individual were calculated and a mean per treatment group obtained. Analysis of the book and reader data yielded a mean, \( \bar{x} = 13.533 \), with a standard deviation of 2.2397. Analysis of the storyteller data yielded a mean, \( \bar{x} = 13.9333 \), with a standard deviation of 2.4766. Analysis of the sound slide data yielded a mean,
\( x = 13.7778 \), with a standard deviation of 2.5297. A one-way ANOVA was applied to determine whether there was a statistically significant difference among these means. Results of the ANOVA yielded an \( F \) ratio = .211 with an associated probability of \( p < .810 \) with two degrees of freedom. In view of these results, the null hypothesis was accepted and post hoc comparison tests were not warranted. See Table XII.

### Table XII. Inference Choice to No Inference Choice by Mode

<table>
<thead>
<tr>
<th>Descriptors</th>
<th>ANOVA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Standard</td>
</tr>
<tr>
<td></td>
<td>Deviation</td>
</tr>
<tr>
<td>Mode</td>
<td>( x )</td>
</tr>
<tr>
<td>---------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>Book and Reader</td>
<td>13.5333</td>
</tr>
<tr>
<td>Storyteller</td>
<td>13.9333</td>
</tr>
<tr>
<td>Sound Slide</td>
<td>13.8667</td>
</tr>
</tbody>
</table>

Terms: Inference = Response choices 1 and 2 combined  
No inference = "3 - I don't know" response  
Mode = Story treatment  
\( x \) = Mean  
F Ratio = Statistic calculated to determine associated probability of ANOVA  
\( p \) = associated probability  
df = degrees of freedom

The individual questions were analyzed by a chi square test of independence comparing inference choice (i.e., response choice one and two combined) to no inference choice (i.e., response choice three, "I don't know"). From this analysis, only one of the sixteen questions, i.e., Question #9, yielded results indicative of a significant difference in response pattern. The analysis of Question #9 yielded a chi square value = 8.8889, with an associated probability of \( p < .012 \) with two degrees of freedom. The response pattern for the book and reader
and the storyteller group were identical and different from the response pattern of the sound slide group. See Table XIII.

Table XIII. Chi Square and Response Pattern - Inference Question #9

<table>
<thead>
<tr>
<th>Mode</th>
<th>n</th>
<th>Students Choosing Inference</th>
<th>Students Choosing No Inference</th>
<th>Chi Square</th>
<th>p&lt;</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>Book and Reader</td>
<td>30</td>
<td>29</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storyteller</td>
<td>30</td>
<td>29</td>
<td>1</td>
<td>8.88889</td>
<td>.012</td>
<td>2</td>
</tr>
<tr>
<td>Sound Slide</td>
<td>30</td>
<td>23</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Terms: Inference = An inference, either response choices 1 or 2, was chosen.  
No inference = Response choice "3 - I don't know"  
Mode = Story treatment  
p = associated probability  
df = degrees of freedom

To test the null hypothesis that there is no difference in individual inferences about story content made by third grade children exposed to the three different modes of story presentation, a chi square test of independence was applied to each inference question comparing the three response choices by mode. This analysis yielded results indicating three of the questions demonstrated significant differences in response pattern by mode: analysis of Question #9 yielded a chi square value = 13.01316 with an associated probability p<.011 with four degrees of freedom. Analysis of Question #12 yielded a chi square value = 10.28270 with an associated probability of p<.036 with four degrees of freedom. Analysis of Question #15 yielded a chi square value = 11.77697 with an associated probability p<.019 with four degrees of freedom. All three of these questions were considered
reliable, with acceptable associated probability levels by one or more of the pilot measures, although one must be interpreted quite cautiously, as discussed below. See Table XIV.

Table XIV. Chi Square and Response Patterns - Inference Questions #9, #12, and #15

<table>
<thead>
<tr>
<th>Story Treatment</th>
<th>Question #9</th>
<th>Question #12</th>
<th>Question #15</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Choice 1</td>
<td>Choice 2</td>
<td>Choice 3</td>
</tr>
<tr>
<td>Book &amp; Reader</td>
<td>30</td>
<td>5</td>
<td>24</td>
</tr>
<tr>
<td>Story-teller</td>
<td>30</td>
<td>9</td>
<td>20</td>
</tr>
<tr>
<td>Sound Slide</td>
<td>30</td>
<td>10</td>
<td>13</td>
</tr>
<tr>
<td>Chi Square</td>
<td>13.01316</td>
<td>10.28270</td>
<td>11.77697</td>
</tr>
<tr>
<td>p&lt;</td>
<td>.011</td>
<td>.036</td>
<td>.019</td>
</tr>
<tr>
<td>df</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Terms: n = Total number of students per treatment group
       Choice 1 = Inference choice "I"
       Choice 2 = Inference choice "2"
       Choice 3 = Inference choice "3 = I don't know"
       p = Associated probability
       df = degrees of freedom

For Question #9, pretest to post test, the associated probability of the chi square was p<.013. Results of the Yates' corrected chi square, pretest to post test, yielded an associated probability of p<.042. These values, as measures of reliability, fall within the acceptable range of a probability level, p<.05. See Table XV.
Table XV. Reliability of Inference Questions #9, #12, and #15

<table>
<thead>
<tr>
<th>Type of Test</th>
<th>Grade Level</th>
<th>Question #9</th>
<th>Question #12</th>
<th>Question #15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi Square - Pre-test to Post Test</td>
<td>3</td>
<td>.013</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>Chi Square - Post to Post-Post</td>
<td>3</td>
<td>.051</td>
<td>NS</td>
<td>.034</td>
</tr>
<tr>
<td>Chi Square with Yates' - Pretest to Post</td>
<td>3</td>
<td>.042</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>Fisher Exact Test - Pretest to Post Test</td>
<td>6</td>
<td>NS</td>
<td>NS</td>
<td>.005</td>
</tr>
<tr>
<td>Chi Square - 3 x 3 Tables - Pretest to Post-Post</td>
<td>3</td>
<td>NA</td>
<td>.0000*</td>
<td>NA</td>
</tr>
<tr>
<td>Chi Square - 3 x 3 Tables - Pretest to Post</td>
<td>6</td>
<td>NA</td>
<td>.019</td>
<td>NA</td>
</tr>
</tbody>
</table>

Terms: Grade Level = Grade level of students from which data was taken.
Fisher Exact Test = SPSS applies for 2 x 2 table with fewer than 21 cases
p = associated probability
NS = Associated probability < .05
NA - Not applicable. Other data was used for reliability for these questions.

*SPSS carries out to four decimal places.

For Question #12, an acceptable reliability measure was obtained with two sets of data in which inference choice "3" was retained. These results must be interpreted in view of the fact that these data sets were not reported as measures of reliability for the other two questions because of small cell frequency in those sets. An acceptable reliability measure was obtained pretest to post-post from the chi square value with an associated probability p < .0000, which SPSS carries out to four decimal places. The sixth grade data also yielded a chi
square value with an acceptable associated probability $p < .019$. While these chi square values indicate acceptable reliability for Question #12, this reliability must be viewed very cautiously since these data sets were not used for the other two questions. Results of the final data must be interpreted in this context. See Table XV.

An acceptable chi square value as a measure of reliability was obtained for Question #15, post test to post-post, with an associated probability $p < .034$ and with the sixth grade data, pretest to post test, Fisher exact value = .00466. See Table XV.

In view of the results of the chi square analyses of the final data, the null hypotheses of no difference in individual inferences about story content made by third grade children exposed to the different presentation modes was accepted except for three specific inference questions. The null hypothesis for these three questions was rejected at a probability level $p < .05$. All three of these questions were considered reliable, although in one case interpreted cautiously, by results obtained by one or more of the pilot measures.

Part Three - Factual Recall

This subsection yielded a number of correct factual responses for each subject. These were totaled for each treatment group—book and reader, storyteller and sound slide show—and a mean for each treatment group calculated. The book and reader mode yielded a mean number of correct responses $x = 12.500$ with a standard deviation = 1.8336. The storyteller mode yielded a mean number of correct responses $x = 11.7333$ with a standard deviation = 2.0331. The sound slide show mode
yielded a mean number of correct responses $x = 12.1667$ with a standard deviation $= 1.9667$. See Table XVI.

Table XVI. Factual Recall by Story Treatment - Descriptives

<table>
<thead>
<tr>
<th>Mode</th>
<th>$n$</th>
<th>$x$</th>
<th>Sta. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Book and Reader</td>
<td>30</td>
<td>12.5000</td>
<td>1.8336</td>
</tr>
<tr>
<td>Storyteller</td>
<td>30</td>
<td>11.7333</td>
<td>2.0331</td>
</tr>
<tr>
<td>Sound Slide</td>
<td>30</td>
<td>12.1667</td>
<td>1.9667</td>
</tr>
</tbody>
</table>

Terms: $n$ = Number of students  
$x$ = Mean number of correct factual recall responses  
Sta. Dev. = Standard deviation for the mean  
Mode = Story treatment

A one-way ANOVA was applied comparing these means to test the null hypothesis that there is no difference in third graders' recall of factual material based on mode of presentation--book and reader, storyteller and sound slide show. Results of the ANOVA yielded an $F$ ratio $= 1.170$ with an associated probability level of $p < .315$ with two degrees of freedom. In view of these results, the null hypothesis was accepted and post hoc comparison tests were not warranted. See Table XVII.

Table XVII. Factual Recall by Story Treatment - ANOVA

<table>
<thead>
<tr>
<th>$F$ Ratio</th>
<th>$p$</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.170</td>
<td>.315</td>
<td>2</td>
</tr>
</tbody>
</table>

One-way ANOVA comparing mean number correct factual recall items by mode.

Terms: $F$ ratio = Statistic used to determine significance of ANOVA  
$p$ = Associated probability  
df = Degrees of freedom
Individual t tests were applied comparing means of the book and reader and the sound slide treatment to that of the storyteller since those means were either outside or close to the outer limit of the 95 percent confidence interval for the storyteller mean. Results of the t test comparing book and reader mode to storyteller mode yielded a t value = 1.53 with an associated probability, two-tailed, of $p < .131$ with 58 degrees of freedom. Results of the t test comparing sound slide mode to storyteller mode yielded a t value = -.84 with an associated probability, two-tailed, of $p < .405$ with 58 degrees of freedom. See Table XVIII. These results could not be considered to indicate there was a statistically significant difference between these means at a probability level, $p < .05$.

Table XVIII. Students' t Test - Comparison x Number Correct Factual Recall Items

<table>
<thead>
<tr>
<th>Book and Reader/Storyteller</th>
<th>Sound Slide/Storyteller</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Book &amp; Reader</td>
<td>Story-</td>
</tr>
<tr>
<td>Reader</td>
<td>Teller</td>
</tr>
<tr>
<td>12.5000</td>
<td>11.7333</td>
</tr>
</tbody>
</table>

Terms: $x =$ Mean number correct factual recall items  
$t$ value = Student's t statistic  
$p = $ Associated probability  
$df = $ Degrees of freedom

Summary

The information compiled in Chapter Four has considered the results of the pilot data collected on third grade and sixth grade students comparing three modes of story treatment--book and reader,
storyteller and sound slide show—on affective content choices, inferences and factual recall.

1. A Pearson $r$ correlation coefficient $r = .6569$ with an associated probability of $p < .002$ was obtained from the sixth grade pretest to post test data, Part One of the instrument, indicating moderate correlation and an acceptable though modest measure of reliability for this study.

2. Reported chi square and Fisher exact tests as measures of reliability for Part Two yielded significant results, some needing cautious interpretation, on ten of sixteen questions.

3. A Pearson $r$ correlation coefficient $r = .6570$ with an associated probability of $p < .002$ was obtained from the sixth grade pretest to post test data, Part Three of the instrument, indicating moderate correlation and an acceptable though modest measure of reliability for this study.

4. Results from a one-way ANOVA on the experimental data yielded no significant difference among the mean number of affective content choices brought to the foreground of attention by each of the three modes of story presentation. In view of these results, the null hypothesis of no difference in third grade children's perception of affective content as opposed to nonaffective content brought to the foreground of their attention by each of three modes of story presentation was accepted.

5. Results from a one-way ANOVA on the experimental data yielded no significant difference--inference choice to no-inference
choice--among the three modes of story presentation. In view of these results, the null hypothesis of no difference in the number of inferences about story content made by third grade children exposed to the three different modes of story presentation was accepted with the following qualification: results of chi square tests of independence on the individual inference questions indicated that on one of the sixteen questions there was a significant difference in the number of inferences made by the children.

6. Results from the experimental data chi square tests of independence on the individual questions yielded no significant different response patterns on thirteen of the questions and significantly different response patterns on three of the questions. In view of these results, the null hypothesis of no difference in individual inferences about story content made by third grade children exposed to the different modes of presentation was accepted except for three specific questions.

7. Results from a one-way ANOVA on the experimental data yielded no significant difference among mean number of correct factual recall choices by each of the three modes of story presentation. In view of these results, the null hypothesis of no difference in third grade children's recall of factual material after being exposed to the three different modes of presentation was accepted.
1. The following questions are referred to in the text:

#9 - Do you think when Elise met the old woman in the forest that Elise

   a. was afraid of her?
   b. was not afraid of her?
   c. I don't know.

#12 - When Elise was flying in the net over the sea, do you think she was

   a. frightened to be so high?
   b. happy to be with her brothers?
   c. I don't know.

#15 - Which do you think best describes the bishop?

   a. He wanted to know all that was going on.
   b. He was an evil, mean person.
   c. I don't know.
CHAPTER 5

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

Introduction

The procedures discussed in the preceding chapters of this study have dealt with whether or not three different modes of story presentation representing, theoretically, different media experiences—a book and reader, a storyteller, and a sound slide show—bring different story content to the foreground of attention. The kinds of story content were, specifically, affective as opposed to nonaffective, inferences and factual.

A fairy tale, The Wild Swans, was analyzed by a group of three adults to identify affective and nonaffective content as operationally defined. A researcher designed instrument was developed consisting of three subparts of sixteen questions each. In the first subsection, affective content was posited against nonaffective content. In the second subsection, specific inference choices were given, most of which had emerged from brainstorming sessions with students during a pre-pilot phase. The third subsection consisted of factual recall questions. The instrument was submitted to a regional language arts expert for verification of construct validity and face validity.

Piloting to determine instrument reliability, i.e., stability, and establish procedures was conducted with two classes of third grade students from one of the elementary schools in Butte School District
Number One using a treatment/test-treatment/retest design. A number of intervening variables were suggested by the results and an attempt was made to eliminate their effect with an additional pilot using sixth grade students and a treatment/test-retest design. An acceptable but modest reliability coefficient was obtained using this procedure.

Third grade students determined to be comparable from three schools in Butte School District Number One were randomly assigned to one of three treatment groups--book and reader, storyteller, and sound slide show. Groups consisted of ten students equally divided by sex as much as possible for a total of ninety students, thirty per each treatment mode. Presentations were made in a real school setting under similar conditions. The same individual gave all presentations and narrated the sound slide show which had been developed by the researcher during the preliminary phase. The instrument was administered by the researcher immediately following the presentations. The final data were compiled and analyzed using a one-way ANOVA on subsections one and three, a one-way ANOVA on collapsed responses from subsection two, and chi square tests of independence on the individual questions in subsection two.

**Organization**

Chapter 5 is organized around the following discussions: the development and piloting of the instrument have been reviewed and the inherent problems and usefulness have been considered. Results of the final data have been discussed. These are comprised of the cross-media comparisons of content in the foreground of attention--affective as
opposed to nonaffective, inferences and factual. Conclusions derived from the study, including a consideration of the original hypotheses and research questions, have been discussed.

The conclusions have been followed by a section in which the researcher's subjective observations and interpretations have been shared for the reader's consideration. Recommendations for further research, based upon the study, have been discussed. The data did not lend itself to concrete educational implications. However, throughout the process of this study, the researcher observed possible educational implications which have been offered for the reader's consideration in this section. The chapter concludes with a summary.

**Discussion of the Piloting of the Instrument**

A crucial preliminary to the study was the development of the instrument. Most previous research on the kinds of content differentially brought to children's attention by various modes of presentation has not utilized a paper and pencil test nor group presentations and data gathering. Rather, most research has relied on individual presentations and interview techniques.

A paper and pencil instrument has a number of advantages over an interview technique. Individual presentations, which do not reflect "real world" settings, are almost always necessary with the interview technique. Besides making group presentations possible, a paper and pencil instrument eliminates the subjectivity of interpreting interview responses and allows for much more data to be gathered in a far shorter amount of time. On the other hand, the interview technique has the
authenticity of the subjects' actual responses which is highly desirable, especially with affective and inference kinds of content.

There were a number of problems that became apparent in developing this instrument which bear serious consideration for future research. These problems primarily have to do with obtaining a reliability coefficient acceptable for a researcher designed instrument.

A major problem was creating an adequate number of test items for each section without making the entire test too long for the students' attention span. Since three distinct kinds of salient content were measured, these categories could not be combined, and while incorporating more questions into each section would have lengthened the test, possibly increasing reliability, the students' attention span was a definite constraint. Additionally, while the story was intrinsically content rich enough to yield enough questions per category for an interview, it was difficult to obtain an adequate number of questions suitable for a paper and pencil test. This researcher would expect similar problems in developing other instruments of this type.

Additional problems regarding reliability were related to the students' reading level. The third grade students needed the instrument read aloud, while they responded silently, pre and post test, to ensure their understanding of the questions. This procedure could mask reliability. From examining the third grade pilot data, the story treatment itself appeared to be a contaminating factor. But, because the story was too difficult for the students to read by themselves, eliminating these variables with this age group was impossible. Consequently, a pre and post test design with sixth graders was utilized.
to eliminate some of these contaminating variables. These sixth
graders read the story and responded to the instrument silently and
were readministered the instrument silently after a period of time
determined to be a balance between memory and forgetting. This silent
reading design seemed preferable for minimizing the factors that might
potentially mask reliability. Similar instruments could be valuable
in related research, but they should be used with an age group capable
of independent reading and responding to eliminate these limitations.

Reliability coefficients for subsections one and three of the
instrument, determined by Pearson correlation coefficients on the sixth
grade pretest to post test data, fell at the upper level of "moderate
correlation," as suggested by Williams (1979) who quotes Guilford
(1956). Results of reported chi square and Fisher exact tests, re­
quiring cautious interpretation and used to determine reliability of
individual questions in subsection two, yielded a maximum of ten ques­
tions with an associated probability of p≤.05. Most tests usually
require higher reliability coefficients. However, due to the explora­
tory nature of this study and Guilford's (1965) consideration that
reliability must be viewed in the context of population and test con­
ditions, it was determined that this reliability, although modest,
was sufficient to proceed with the study and all results would have
to be interpreted in this context.

Discussion of Affective Content in the Foreground of Attention

Data were gathered comparing three modes of story presentation—
book and reader, storyteller and sound slide show—on affective
content, operationally defined and contrasted with nonaffective—in the foreground of attention. A one-way ANOVA was applied comparing the mean number of affective content choices calculated per treatment group and no significant difference among these means was found. Based on these results, the null hypothesis of no difference in third grade children's perception of affective content brought to the foreground of their attention by the three modes of presentation was accepted. Also based on these results, there were no data to substantiate the research question that affective as opposed to nonaffective content might be more effectively brought to the foreground of attention by any of the three modes of presentation.

The lack of significant finding must be interpreted in light of the experimental conditions: the interaction of the storyteller/reader/narrator with the subjects, the inherent variability in the storytelling and reading, the administration of the instrument and the instrument itself may have all contributed to "no difference" among treatment groups.

Perhaps more importantly, there may not have been a dramatic enough difference between the modes of presentation to create real differences in the communication potential of the media. The storytelling experience, because of the necessity of presenting a memorized text and consistent delivery, was far more stilted than a spontaneous storytelling experience. And the sound slide show, which lacked the attributes of movement and animation characteristic of televised presentations, such as Meringoff (1978) used, may simply have been too close to the book and reader experience to produce a difference.
Modes possessing more clearly delineated and variant attributes (e.g., television versus book and reader) might produce more dramatic results.

Furthermore, paper and pencil instrumentation may not be sensitive enough to capture differences in the individual subjects' perceptions of affective content, and the story analysis itself, upon which the instrument was based, may not have been sensitive enough to detect affective nuances. If that were the case, an interview technique might rectify most of these inadequacies.

Discussion of Inference Questions

Data from the second subsection of the instrument were used to test two null hypotheses: 1) that there is no difference in the number of inferences about story content made by third grade children exposed to the three different modes of story presentation and 2) that there is no difference in individual inferences about story content made by third grade children exposed to the three modes of story presentation. Results from these data were also used to assess two research questions: 1) whether or not there were indications that children make more or fewer inferences about story content based on the mode of presentation and 2) whether or not there were indications children make different inferences based on the mode of presentation.

To test the first of these null hypotheses, the first two inference choices for each question were combined as an "inference choice" and compared with response choice three, i.e., "I don't know," which was considered as a "no inference" choice. A mean per treatment group was calculated and a one-way ANOVA applied comparing mean differences.
Results of the ANOVA yielded no statistically significant difference between means. In view of these results, the null hypothesis was accepted and post hoc comparison tests were not warranted.

Chi square tests of independence were applied to each individual question, inference choice to no inference choice, and yielded one out of sixteen questions in which there were significantly more no inference responses, i.e., "I don't know" responses, among the sound slide respondents. In view of these results and results of the ANOVA, the research question of whether or not there are indications that children make more or fewer inferences based on mode of presentation, seemed unsubstantiated except in one out of the sixteen specific cases.

To test the null hypothesis that there is no difference in individual inferences about story content made by third grade children exposed to the three different modes of story presentation, a chi square test of independence was applied to each inference question comparing the three response choices by mode. This analysis yielded results indicating three of the questions demonstrated significant differences in response pattern by mode. These questions had been determined to be acceptably reliable by at least one of the analyses from the piloting. In the case of one of the three questions, however, interpretation of the reliability was considerably more questionable because the specific data sets used were not used for the other two questions because of small cell frequency.

In view of these results, the null hypothesis of no difference in individual inferences about story content made by third grade children exposed to the different presentation modes was accepted except for
three specific inference questions. Based on these results, the research question of whether or not there are indications that children made different inferences about story content according to mode of presentation could not be answered definitely and had to be considered in the context of the results from all the inference questions.

These results do not seem to be completely consistent with Meringoff's (1978) findings in which the inferences across the media were the same but the line of reason for arriving at the inferences was different. However, in general, these results are consistent with the analysis of the results of Part One of the instrument from this study in which there was no difference in affective as opposed to non-affective content brought to the foreground of attention by each of the three modes of presentation. Besides the possibility that the factors of experimental conditions and instrumentation may have affected these findings, there also may not have been a dramatic enough difference between the modes of presentation to create more difference in the communication potential of the media.

Discussion of Factual Content in the Foreground of Attention

Data were gathered comparing three modes of story presentation--book and reader, storyteller and sound slide show--on factual content in the foreground of attention. A one-way ANOVA was applied comparing the mean number of correct responses per treatment group and no significant difference among these means was found. Thus, the null hypothesis of no difference in third grade children's recall of factual material based on the three modes of presentation was accepted. Also,
based on these results, there were no data to substantiate the research question that factual content might be differentially brought to the foreground of attention by any of the three modes of presentation.

The lack of significant findings is consistent with the lack of significant findings from the other two subsections. There simply was no difference, at least on these questions, in factual recall discrimination by mode. It is possible that using an interview technique for data gathering might produce more differences in factual recall, and that differences might be augmented if the modes of presentation were representative of more variable attributes, and the questions more closely correlated with those attributes.

Conclusions

The following conclusions were reached as a result of this experimental study.

1. There was no difference in affective content as opposed to nonaffective content brought differentially to the foreground of attention by the three modes of story presentation as determined in this experimental setting. Based on this conclusion, the null hypothesis of no difference in third grade children's perception of affective content brought to the foreground of their attention by the three presentation modes was accepted. There was no evidence to substantiate the research question that affective as opposed to nonaffective content might be more effectively brought to the foreground of attention by any of the identified modes of presentation.
These conclusions must be interpreted in the context of the modest reliability coefficient obtained for this subsection of the instrument.

2. There was no difference, overall, between inference choice as opposed to no inference choice made by students presented the three modes of story treatment—book and reader, storyteller and sound slide show—as determined in this experimental setting. Based on this conclusion, the null hypothesis of no difference in the number of inferences about story content made by third grade children exposed to the three different presentation modes was accepted. Overall, the research question of whether or not there are indications that children make more or fewer inferences based on mode of presentation seemed unsubstantiated except in one out of the sixteen specific cases. These conclusions must also be viewed in the context of the modest reliability indices obtained in this subsection of the instrument.

3. There was no difference in individual inferences about story content made by third grade children exposed to the three different modes of presentation for approximately eighty percent of the individual inference questions. Based on this conclusion, the null hypothesis of no difference in individual inferences about story content made by third grade children exposed to the different presentation modes was accepted except for three specific questions. The research question addressing whether or not there are indications that children
make different inferences about story content according to
the presentation mode could not be answered definitely.
These conclusions must be considered in the context of the
modest reliability indices obtained on these questions.

4. There was no difference in third grade children's correct
factual recall based on the three modes of presentation--
book and reader, storyteller and sound slide show--as deter-
mined in this experimental setting. Based on this conclu-
sion, the null hypothesis of no difference in third grade
children's recall of factual material based on the three
modes of presentation was accepted. There was no evidence
to substantiate the research question that factual content
might be differentially brought to the foreground of atten-
tion by any of the three presentation modes. While these
conclusions are warranted by the results of the study, they
must be viewed in the context of the modest reliability
coefficient obtained for this subsection of the instrument.

Observations and Interpretations

The following subjective observations and interpretations have
been based on the researcher's experiences during the entire process
involved in the conceptualization, execution and completion of this
study. Because of the exploratory nature of this research, these sub-
jective observations have been offered to the reader for consideration.
They are not, however, conclusions based on results of the experimental
study.
1. A feasible technique for story analysis is the determination of operationally defined content by panel consensus. However, this technique may not yield a sufficient quantity of content items to render it useful.

2. It is possible to design a paper and pencil instrument for determining subjects' perceptions of salient content; however, it is very difficult to obtain a sufficiently high reliability coefficient, especially when the instrument is used with elementary school aged children and when it is determining more than one type of salient content. Further investigation of the development of this kind of instrument with different age groups may be warranted since a large quantity of data can be collected in a short time with group presentations and since such an instrument could yield valuable information about the effects of different media.

3. Although demonstrated by the data for only three specific questions, there are indications that some inference content may be differentially brought to the foreground of attention by the different modes of presentation. The researcher's interpretation of the students' response patterns on these three questions would seem to indicate that the inference choices were influenced by attributes of the picture stimulus, e.g., the presence or absence of certain pictures, and the use of close-up shots of characters' facial expressions.

4. Although not substantiated by the study, the modes of book and reader, storyteller and sound slide show may possess
attributes that are not characteristically distinctive enough to differentially influence perception of content.

Recommendations for Further Research

The following recommendations for further research were derived from the conduct of this study.

1. In lieu of a replication of this study, it is recommended that a book and reader, storyteller and filmstrip or sound slide show comparison be made on an individual basis using an interview technique, similar to that used by Meringoff (1978). This would provide an alternative method to determining whether or not these media possess attributes characteristically different enough to create a difference in information potential.

2. It would seem productive for future research to more clearly delineate specific attributes of various media and to try to relate identified, specific attributes to affective and inferential interpretations of content.

3. Any similar research should possibly minimize the environmental factors which might contaminate the results. For example, it is recommended that the same location be used for all the presentations. Additionally, it might be desirable if the presenter were familiar to the students. If students from only one school were used, cross grade level comparisons could be made. However, accommodations would have to be made for the students' differing attention
spans and reading levels if those were factors in the research design.

4. The development of paper and pencil instruments for determining information potential in cross-media studies warrants further investigation. Since more data can be collected in a shorter amount of time and since group settings are more reflective of real school situations, the refinement of a technique for such instrument development would be valuable. Such instrument development should be appropriate to the independent reading level of the subjects and their attention span. It might be necessary to limit the instrument to collecting only one kind of data (for example, only one kind of salient content). Knowing the feasibility of regularly using this kind of instrument would give direction to further research.

5. Alternative approaches both to paper and pencil instrument and interview technique seem warranted at this point. Some of these might include nonverbal conceptualization of the story such as arranging, sorting or ranking pictures or observation techniques using video equipment. Further research could draw from other disciplines, such as psychology, which may have nonverbal measures of affective responses which could be correlated with different presentations of a story.

6. In addition to perceptions of affective content and inferences about content, other areas, such as problem solving,
could be investigated. An interesting approach might be to investigate whether or not there are differences in problem solving techniques on a problem specifically related to a story after having it presented by different modes.

7. An investigation of preferences of mode might be undertaken, relating these preferences to the individualized variable of learning style.

8. Future research should focus on comparing modes of presentation that possess, at least apparently, dramatically different attributes. However, the medium of the filmstrip, especially used for presentations of children's storybooks, warrants more investigation. Since there are so many excellent commercially produced filmstrips, they could perhaps be used in a series of comparisons on some identifiable traits.

9. The long term and overall effect of different media presentations, such as the work done by Smardo and Curry (1982), warrants further investigation. In this kind of study, a type of media presentation is given regularly over a long period of time. Pre and post testing is used to determine whether or not there are changes on some generalized ability that are related to these differential exposures.

**Educational Implications**

The actual data derived from this study did not lend itself to concrete educational recommendations. However, throughout the process of conducting this study, the researcher has perceived a number of
possible educational implications which are suggestions for the reader's consideration.

1. It appears that live presentations are enjoyed by students who seem to appreciate the personal contact with the reader or storyteller. Memorized storytelling presentations do not seem as effective in capturing and holding attention as other modes. Spontaneous storytelling might be preferred for some purposes to memorized storytelling. Although not demonstrated by the study, teachers, librarians and parents who value reading aloud and using live presentations might be reassured that there seems to be value in these experiences even though at times such value might be intangible and not subject to quantitative analysis.

2. Although this suggestion goes beyond the data, teachers and librarians, when using media such as filmstrips or televised productions to present storybooks, might give consideration to the effect on the students that they wish the presentation to have. Although not determined in this study, there may be subtle differences in information potential that are transmitted. Other research has indicated this possibility. It might be worthwhile to utilize alternative media forms when available.

3. It appears to this researcher that fairy tales and folk lore still seem to be popularly received by children, and teachers and librarians might be encouraged not to omit these and other traditional literary forms from the children's exposure.
4. From this researcher's observation, a relaxed, comfortable atmosphere is important to a successful storytelling or book and reader experience. It also is important for the storyteller or reader to be personally familiar with the students.

5. Although not substantiated by the data, the presence or absence of illustrations and the kind of expression the illustrated characters display may make a difference in some inferences about story content. In view of this possibility, teachers and librarians might be wise to carefully select illustrated versions of stories when alternatives exist.

6. Although this suggestion goes beyond this study, with so many forms of media accessible to students today, it would seem prudent to expose students to as many of these forms as possible, giving them a wide range of experience in interpreting information transmitted through different forms.

**Summary**

Chapter 5 of this study has dealt with the following: a discussion of the pilot and the instrumentation, a discussion of the results of the study regarding affective and nonaffective content, inferences and factual recall, conclusions (including a consideration of the original hypotheses), subjective observations and interpretations, observed educational implications, and recommendations for further research.

Discussion of the pilot focused on problems inherent in the development of a researcher designed instrument. Since a significant preliminary to this study was the development of the instrument and since
use of a paper and pencil instrument is very uncommon in this research, this discussion could bear consideration for future research of a similar nature.

Discussion of the experimental findings explicated the results obtained when students were exposed to the three different modes of presenting the same story—book and reader, storyteller and sound slide show. The instrument compared their responses on affective as opposed to nonaffective content, inferences and factual recall.

Conclusions were derived from the original hypotheses upon which this study was based. Additionally, subjective observations and interpretations made by the researcher during the entire experimental process were discussed. Because of the exploratory nature of this research and paucity of precedent studies, it may be that the study's primary value to educational research has been the delineation of the experimental procedures used throughout this process.

There were no concrete educational implications derived from the data. However, throughout the study, the researcher perceived a number of possible educational implications, which (as suggestions for the reader's consideration) have been discussed in this section.

Perhaps research in new areas leaves more questions than it does answers. The study described in these chapters is somewhat consonant with this observation. Throughout the experimental process, however, the study has fruitfully provided new questions related to cross-media considerations, possible new approaches to the questions that motivated this study, and hopefully background information for individuals interested in the theory and research relating to media studies.
REFERENCES CITED


APPENDIX A

PILOT MATERIAL
a messenger from the castle
Elise had a footstool made of glass
...(clouds) that looked like forests, mountains and shining palaces
golden shirts with stars and swords
(old woman in the woods was) a witch
witches
minister
about her brothers
bony fingers
eleven princes and one princess
somebody told her they'd been turned into swans
they understood what she was doing was for them
she cried and laughed
they wept
she loved her brothers
she was sad when she was growing up
at the beginning they are happy from the time they wake up until they go to bed at night
princes are happy at the beginning
he didn't like her (minister)
he was going to burn her

she was glad—excited when she got to the seashore
they thought she was a witch because she went to the graveyards at night
the fairy was the old lady
the king thought she was a witch
the old lady was good
...ships that looked like sea gulls sparkling in the water
it was trying to tell about life
it was trying to tell about life—the exciting things
it was trying to tell about the ups and down of life
eleven swans and a princess' life
it was trying to tell about love
(it was trying to tell you) sometimes you run into bad things in life
when you run into bad things in life you have to work your way out
princess seen a witch in the forest when she was looking for her brothers
the king wanted to marry her
they made a net so she could go with them
fairy told her to gather all the nettles she could get
she was dreaming about going up to castles
she saw the swans land
wicked queen turns them into
eleven wild swans
she found eleven swans' feathers
on the beach
she fell into their arms
they fell into each others' arms
she laid down and the swans
grasped the net and flew over
the sea
she saw clouds
they made a net
she saw ships
she dreamed of a fairy
they found Elise silent
he (minister) went back and told
the king
(when she went to get the
nettles) he followed her
the king came--he picked her up
and took her away
after a while the brothers came
father married a wicked woman
princess knit some sweaters
(minister) nice
if the sun went down and they
were still up in the sky they'd
come crashing down
she needed the weeds to turn her
brothers back into boys

princess was sent away to a farm
princes were turned into swans
she found the nettles in the grave-
yard
(she saw) feathers
(witches) clawed the ground
lady told her (brothers turned into
swans)
they made a net so she could go
with them
fairy told her to take as many
nettles as she can to make some
sweaters
she saw a fairy
AFFECTIVE CONTENT
1 - these children **were happy**
2 - queen who **hated the children**
3 - tears **streamed** down her face
4 - once more they were children playing together **carefree and loved**
5 - Elise threw hereself down and **began to weep**
6 - she looked up, **to her joy**
7 - they **laughed and cried**
8 - the brothers came back and **were alarmed**
9 - the king **saw her smile** for the first time
10 - **joyously clasped her** to him
11 - king, who **loved her and wanted so much to please her**
12 - she stole away **fearfully**
13 - to her **horror**
14 - Elise saw the **king's sorrow**
15 - it **troubled her greatly, adding to the pain**
16 - she **was so happy**
17 - the crowd moved **back fearfully**
18 - she awoke and **smiled at him**
19 - she **had loved him**
CONTENT FROM GUIDED BRAINSTORMING
What was the story about?

eleven princes and one princess
princes were turned into swans
princess sent away to a farm
she found the nettles in the graveyard
father married a wicked woman

What else was in the graveyard?

witches
clawed the ground (what did they do?)
(what kind of fingers did they have?) bony

When she went looking for her brother?

(how did she find out her brothers had been turned into swans?)
lady told her
saw feathers
she was glad - excited when she got to the seashore
after a while the brothers came
sun came down and swans came and they turned back into boys
(what would happen if the sun went down and they were still up there?)
they would come crashing down
(how did she decide to look for her brothers?) because somebody told her they'd been turned into swans

What was the old woman in the woods like?

a witch - nice - (because she told her about the swans)

What did they do?

made a net (why did they want to make a net?) so she could go with them
while she was in the net what did she do?
she was dreaming about going up - to castles
Then they got to the land and she dreamed—what did she dream about?

about her brothers
she saw a fairy
fairy told her to take as many nettles as she can to make some sweaters

What did the nettles do when she touched them?

made her fingers blister

Next day as she was knitting the shirts what happened?

they turned to sweaters
the king came—he picked her up and took her away

Then they got married—did they live happily ever after?

no

Who was there at the palace—who married them—what kind of person was he?

minister - priest - nice - churchman

Was he nice to Elise?

he didn't like her—he told the king she was a witch
(when she went to get the nettles, what did he do?) he followed her and (then he saw the witches and what did he do?) he went back and told the king
INSTRUMENT DIRECTLY FROM TEXT
INTRODUCTION

At the beginning Elise and her brothers are described. Which seemed most important as the story was told to you?

1) these children were happy (from the time they woke in the morning until they went to bed at night) [Affective]

2) these children lived in a warm and pleasant land (the princes wore stars on their shirts and their sister had a footstool made of glass) [Descriptive]

CONFLICT AND TRAGIC EVENTS

The children's life is changed when the king gets married. Which seemed most important as the story was told to you?

1) the queen sent Elise away (to be looked after by farmers) [Action]

2) the queen hated the children (and wanted only to be rid of them) [Affective]

BEGINNING OF THE QUEST

The king's messenger tells Elise that her brothers were turned into swans. She resolves to find them. Which seemed more important as the story was told to you?

1) (At nightfall) she came into a great forest where the air was still and mild (and everywhere glowworms shown with a green fire) [Descriptive]

2) (All night) Elise dreamed of her brothers and (once more) they were (children) playing together carefree and loved. [Affective]
REUNION

Elise and her brothers are reunited on the seashore. Which seemed most important as the story was told to you?

1) They laughed and cried and held each other (in the growing darkness) [Affective]

2) They spent the night making a net (from willow bark and rushes) [Action]

IMPLEMENTATION OF THE SOLUTION

The fairy (comes to Elise in her dream) shows Elise the nettles and tells her how she can free her brothers. Which seemed more important?

1) (Then) Elise awoke and began her task. [Action]

2) The brothers were alarmed (by her silence) but they understood her work was for them (for their sake) [Affective]

ARRIVAL OF THE KING

The king discovers Elise and takes her to his magnificent city where he marries her. Which seemed most important?

1) (After Elise became queen) the king led her to a chamber where her bundle of shirts and nettles were. [Action]

2) Elise smiled for the first time (and the king joyously held her to him) [Affective]

DESCRIPTION OF THEIR RELATIONSHIP

Which seemed most important?

1) The king (loved her) and wanted (so much) to please her. [Affective]

2) (Each night) when the king was sleeping Elise knitted the shirts. [Action]
FINAL CONFLICT INTRODUCED

Elise runs out of nettles and has to gather more from the church yard (at night). Which seemed most important?

1) The bishop (followed Elise and) told the king about her (nighttime) visit and (about) the witches. [Action]

2) Elise saw the king's sorrow; and it troubled her (greatly) and added to (her) pain (she already felt). [Affective]

BEGINNING OF THE CLIMAX SCENE

While Elise was in the dungeon one of the swans finds her. Which seemed most important?

1) She was happy because (though she might soon be dead) her task was almost done and her brothers were nearby. [Affective]

2) The brothers tried to (see the king and) save Elise but were turned into swans as the sun came up. [Action]

FINAL SCENE

The swans are turned into Elise's brothers and she is freed. Which seemed most important?

1) She (awoke and) smiled at the king for she had loved him from the beginning. [Affective]

2) They returned to the palace (great flocks of birds appeared and) churchbells rang out throughout the land. [Action]
INSTRUMENT: INFERENCES ABOUT AFFECTIVE CONTENT
INTRODUCTION

CONFLICT AND TRAGIC EVENTS

(From the way the story was told to you) do you think that

1) Elise's father was sad about what happened to her and her brothers. [Affective-

2) Elise's father didn't care what happened to her and her brothers.

THE QUEST

(From the way the story was told to you) do you think that the old woman in the forest

1) didn't want to be bothered by Elise. [Affective-

2) was friendly to Elise. opposites]

(From the way the story was told to you) when Elise FIRST reached the sea she was

1) exhausted and sad. [Affective]

2) excited and happy. opposites]

(From the way the story was told to you) when Elise was flying in the net over the seashore she was

1) peaceful and calm. [Affective-

2) frightened to be so high above the water. opposites]

SOLUTION

Which best describes Elise when the huntsmen find her

1) She is pleased (at) the king's (calls her "beautiful maiden") attention. [Affective-

2) She is worried that she will be taken from her work. opposites]
CONFLICT

Which best describes the bishop.

1) He was a bad person.  [Affective-

2) He (wanted to know) what went on (at the neutral]

palace).

When the bishop sees the witches (on the graves which do you think best describes how he felt?) how did he feel?

1) (He was) frightened (watching them claw the earth).  [Affective]

2) (He was) glad (they were there) because he could tell the king.  opposites]

As the story was told to you how do you think the king felt when the people judged Elise to be a witch?

1) Relieved he didn't have to decide.

2) Sad they said she was a witch.

Which of these is most true about the story?

1) It was a story about hardship in life and love.

2) It was a story of long ago when there was adventure, magic, kings, and queens.
APPENDIX B

FINAL INSTRUMENT AND STORY TEXT
THE WILD SWANS

PART I

1. At the beginning, which seemed most important?
   a. These children were happy.
   b. These children lived in a warm and pleasant land.

2. After the king got married, which seemed most important?
   a. The queen sent Elise away.
   b. The queen hated the children.

3. As the brothers flew from the palace, which seemed most important?
   a. They circled the countryside.
   b. Their cries were strange and mournful.

4. Which seemed most important?
   a. The years that passed for Elise were bleak and empty.
   b. Elise was horrified at the sad fate of her brothers.

5. Which seemed most important as Elise wandered about?
   a. Tears streamed down her face.
   b. The air in the forest was still and mild.

6. When Elise reached the seashore, which seemed most important?
   a. She began to weep.
   b. She saw eleven swans' feathers on the sand.

7. Which seemed most important when she saw the swans?
   a. The swans had golden crowns.
   b. Elise was joyous.
8. Which seemed most important?
   a. They laughed and cried and held each other.
   b. They spent the night making a net.
9. After the King found Elise, which seemed most important?
   a. The king loved Elise and wanted to please her.
   b. The bishop whispered the forest maiden must be a witch.
10. When she went to get more nettles, which seemed most important?
    a. Elise walked to the churchyard alone.
    b. She was horrified when she saw the witches.
11. Which seemed most important?
    a. The bishop had followed Elise to the churchyard.
    b. The king's heart was broken when he heard about Elise.
12. Which seemed most important?
    a. Elise saw the king's sorrow.
    b. She had only one more shirt to knit.
13. Which seemed most important?
    a. The king's sorrow troubled her and added to her pain.
    b. The king and the bishop both followed Elise the next time.
14. Then which seemed most important?
    a. The king saw the witches sitting on the graves.
    b. The king could watch no more and cried, "Let the people judge her!"
15. After Elise was taken to the dungeon which seemed most important?
    a. All night long she worked.
    b. She was happy though she might soon be dead.
16. Which of these seemed most important?
    a. She cried "I am innocent."
    b. The oldest told them all that had happened.
PART II

From the way the story was told to you:

1. Do you think when they were little Elise and her brothers
   a. did not get along with each other?
   b. did get along with each other?
   c. I don't know.

2. Why do you think the children's real mother was not living with them?
   a. She had moved away.
   b. She had died.
   c. I don't know.

3. Do you think that their real mother
   a. had been nice?
   b. had not been nice?
   c. I don't know.

4. Do you think the queen the king married
   a. was pretty?
   b. was not pretty?
   c. I don't know.

5. Do you think the farmers who took care of Elise were
   a. mean to her?
   b. kind to her?
   c. I don't know.

6. Do you think that Elise's father
   a. didn't care about what happened?
   b. was sad about what happened?
   c. I don't know.

7. Why do you think the king did not try to help Elise and her brothers?
   a. He didn't want to.
   b. The queen had power over him.
   c. I don't know.
From the way the story was told to you:

8. Do you think the forest Elise went into
   a. was an ordinary forest?
   b. had a magical power?
   c. I don't know.

9. Do you think when Elise met the old woman in the forest that Elise
   a. was afraid of her?
   b. was not afraid of her?
   c. I don't know.

10. Do you think that the old woman in the forest
    a. was friendly to Elise?
    b. didn't want to be bothered by Elise?
    c. I don't know.

11. When the brothers lived as swans, do you think they were most afraid of
    a. being shot at by hunters?
    b. not finding enough food?
    c. I don't know.

12. When Elise was flying in the net over the sea, do you think she was
    a. frightened to be so high?
    b. happy to be with her brothers?
    c. I don't know.

13. Do you think Elise
    a. liked her task because it would free her brothers?
    b. disliked her task because it would cause her a lot of pain?
    c. I don't know.
14. Which do you think best describes Elise when the huntsmen find her?
   a. She is worried she will be taken from her work.
   b. She is pleased at the king's attention.
   c. I don't know.

From the way the story was told to you:

15. Which do you think best describes the bishop?
   a. He wanted to know all that was going on.
   b. He was an evil, mean person.
   c. I don't know.

16. Which of these do you think is most true about the story?
   a. It is a story about love and life's bad times and good times.
   b. It is a story of long ago when there was adventure and magic.
   c. I don't know.
PART III

1. TRUE FALSE Elise had a footstool made of glass.
2. TRUE FALSE Elise lived with the farmers only a few months.
3. TRUE FALSE Elise had thirteen brothers who were turned into swans.
4. TRUE FALSE A messenger told Elise what happened to her brothers.
5. TRUE FALSE While she slept in the forest, Elise dreamed of her brothers.
6. TRUE FALSE The swans wore royal purple capes on their backs.
7. TRUE FALSE At sunset the swans were changed into men.
8. TRUE FALSE The swans carried Elise on a net made of rushes and bark.
9. TRUE FALSE The fairy in Elise's dream and the old woman in the forest did not look like each other.
10. TRUE FALSE If Elise talked while she knit, her hands would be too blistered to work.
11. TRUE FALSE The nettles Elise needed grew in graveyards.
12. TRUE FALSE The people in the king's court did not think Elise was beautiful.
13. TRUE FALSE Elise was frightened by the witches in the graveyard.
14. TRUE FALSE While Elise was in the dungeon, her brothers went to the palace to try to see the king.
15. TRUE FALSE The sticks for the fire grew leaves and roses.
16. TRUE FALSE The oldest brother was left with a swan's wing instead of an arm.
Far, far away, in a warm and pleasant land, there once lived a king who had eleven sons and one daughter. The princes wore stars on their shirts and swords at their sides, and their sister Elise sat on a footstool made of glass. These children were happy from the time they woke in the morning until they went to their beds at night.

But after some years had passed, the king married a wicked queen who hated the children and wanted only to be rid of them. It was not long before the queen sent Elise away to be looked after by farmers. But the fate of the princes was even worse. "You shall become great voiceless birds and fly out into the world," she commanded. At once the princes turned into eleven wild swans. With strange and mournful cries, they flew from the palace windows and circled the countryside until they came to the place where Elise lived. They hovered over the roof, beating their wings but by the time Elise came outside, they had gone.

The years that passed were bleak and empty. Then one bright morning a messenger from her father arrived to tell Elise the sad fate of her brothers. Horrified, Elise resolved to find them, even if it took all her life. That night she stole away and wandered over the fields and hills. Tears streamed down her face.

At nightfall she came into a great forest. The air was still and mild, and everywhere glowworms shone with a green fire. As she lay down they cascaded upon her like shooting stars. All night long
Elise dreamed of her brothers. Once more they were children playing together, carefree and loved.

But when she awoke she was alone in the forest and she set out again. She had walked only a few steps when she met an old woman. Elise asked if she had seen eleven princes. "No," said the old woman, "but earlier I saw eleven swans with golden crowns swimming down a stream nearby." She pointed the way, and Elise followed the stream until it came out upon the open shore where before her lay the whole immense sea.

Elise threw herself down and began to weep. Suddenly on the sand she saw eleven swans' feathers and as she looked up, to her joy, Elise saw eleven swans with golden crowns flying toward the shore. As the red disk of the sun sank beneath the waves, they alighted and one by one they turned into her brothers. She ran into their arms and they laughed and cried and held each other in the growing darkness.

The eldest told her their story. "As long as the sun is in the sky we fly about as wild swans, but when night comes, we return to human shape. That is why we must always search for solid ground at sunset, for we would fall from the clouds to our deaths. Tomorrow we must fly away to a land across the sea. Have you the courage to come with us?" "Yes!" cried Elise. So they spent that night making a net from willow bark and rushes. Elise lay down upon it and fell asleep. At daybreak as the brothers were changed into swans they seized the net with their beaks and flew up to the clouds. They were far out over the sea when Elise awoke.
As the sun rose higher she began to see pictures in the clouds--mountains and forests and shining palaces--and at last she looked down and saw land. The swans flew over cedar woods that smelled fragrant in the sunshine and set her before a cavern hung with delicate green plants.

There she fell asleep, and dreamed that she flew up to the palaces she had seen in the clouds. A beautiful fairy came to her who looked just like the old woman she'd seen in the forest. "Your brothers can be freed," she said, "but the pain you must bear is great. Look closely at the stinging nettle in my hand. Gather only those that grow on the graves in churchyards. They will blister your skin, but you must crush them, spin the flax and knit it into eleven shirts. When you throw these over the wild swans, the spell will be broken. But remember--from the time you begin the work until it is ended, you must be silent. Your first word will pierce your brother's hearts like a sword." Then Elise awoke and began her task.

At sundown the brothers came back and were alarmed by her silence and her blistered hands, but they understood that her work was for their sake. The next day, as she knitted suddenly hunting horns rang out and huntsmen appeared at the cavern. The most handsome among them was the king.

"Why are you hiding here, beautiful maiden?" he asked. Elise only shook her head, not daring to speak. "Come with me," he said and the king took her on his horse and galloped off among the mountains, to his magnificent city. He led her into a beautiful palace where she
was brought before the court. So glorious was her beauty that everyone bowed down before her and the king took her for his bride.

Only the bishop was unmoved. He whispered that the forest maiden must be a witch and that she had beguiled the king. Though he didn't want to, he was forced to marry them.

After Elise became queen the king led her to a little chamber that looked exactly like the cavern in the forest. Her bundle of nettles and the shirts were there. As Elise was shown all these things the king saw her smile for the first time and joyously embraced her.

As the days passed Elise yearned to confide in the king, who loved her and wanted so much to please her. Each night when he was sleeping Elise knitted, one shirt after another. But as she began the seventh she found there was no flax left. So one moonlit night she stole away fearfully and walked to the churchyard alone where she found more nettles. To her horror though on the newly dug graves she saw a group of witches clawing at the earth with long bony fingers.

She was not the only one who saw them. The bishop who had followed her saw them too and now was certain Elise was a witch. Quickly he told the king whose heart was broken.

Elise saw the king's sorrow, and it troubled her greatly, adding to the pain she already felt for her brothers. But now she was almost finished and had only one more shirt to knit. She went again to the churchyard. This time the bishop and the king followed her. When the king saw the witches sitting on the graves he could watch no more and cried, "Let the people judge her!" and they did. They declared she was a witch and must die by fire.
Elise was led away to a dark dungeon where she continued knitting. Toward evening a swan alighted at her cell. It was her youngest brother. He had found Elise at last! She was so happy because though she might soon be dead, her task was almost done and her brothers were nearby.

All night long she worked. Shortly before daybreak the eleven brothers came to the palace and demanded to be taken before the king. They begged and threatened until finally the king appeared. But at that very moment the sun came up, and only eleven wild swans could be seen, flying away.

As the execution drew near all the people of the city streamed from the gates to see the witch die. Elise was taken to the fire in an open cart knitting the last shirt.

The crowd jeered, "Look at the witch!" and rushed at her, but eleven swans flew down upon the cart and beat their wide wings furiously. The crowd moved back fearfully and some whispered, "Perhaps this is a sign from heaven and she is innocent!"

As the executioner took Elise by the hand she quickly threw the eleven shirts over the wild swans and suddenly, eleven handsome princes stood there, the youngest of which had a swan's wing in place of an arm, for Elise had not time enough to finish his sleeve.

"Now I can speak!" she cried. "I am innocent!" Then she fell into her brothers' arms, exhausted. "Yes, she is innocent," said the eldest and he told them all that had happened.

As he spoke the air was filled with perfume, for every stake in the fire had grown leaves and red roses and at the very top shone a
single white rose. When the king picked it and held it to her face she awoke and smiled at him, for she had loved him from the beginning.

As they returned to the palace great flocks of birds appeared and churchbells rang out throughout all the land.
APPENDIX C

INSTRUCTIONS TO TREATMENT GROUPS AND LOG
Instructions to Treatment Groups

Instructions were standardized except for deviations as noted below in the log.

The researcher introduced herself as a librarian working with the elementary libraries. Students were told they were part of a project to find out what "kids think about stories." It was explained they would be presented a story, that afterwards they could stand up to "get the kinks out" and then they would be given some questions to find out what they thought about the story.

The storyteller was introduced. After the presentations, she left and was not present during the administration of the questions, except during the last administration on the last day.

The students helped pass out material (pencils and cardboard), and the instruments were given to the students by the experimenter or by a student. In the latter case, the experimenter went to each student and spoke his or her name to gain familiarity and establish rapport.

It was explained that the instrument was not a regular kind of test but one used to determine what "kids think about stories" and that there were three parts with no right or wrong answers in the first two and true-false questions in the third.

The researcher attempted to make the students feel as relaxed and comfortable as possible and to establish a nonthreatening atmosphere. The directions were explained informally to the students, rather than formally, to establish this atmosphere.

The students were told that two other schools were involved, that each student was individually identified by the number at the top of the page, and that their answers would subsequently be fed into a computer.

Log - Data Collection, May 4-11

The following deviations from completely standardized procedures occurred during data collection.

1. Group 1 (May 4, Margaret Leary) administration of questions was interrupted by an unexpected chorus rehearsal. Questions had to be repeated loudly and in some cases gone over again.

2. Group 2 (May 4, Margaret Leary) was moved to a different location (a quiet corner of the library) to avoid having interference from a chorus rehearsal next door. Since the school is an open space school, the students were probably fairly comfortable in the new setting.
3. Students from one class reported their teacher had not informed them ahead of time of the project.

4. If the students seemed to grow restless during administration of the questions, they were asked to stand up and stretch an additional time.

5. Margaret Leary (May 4), a fifteen minute recess separated the first two presentations from the third; Kennedy (May 8), a thirty minute recess separated the first two presentations from the third; Longfellow (May 11), no recess separated the presentations.

6. Group 7 (book and reader, Longfellow, May 11) instruction to the students to "pay close attention" was inadvertently omitted. However, observation indicated the students paid as good, if not better, attention than other groups.

7. Kennedy Groups 4, 5 and 6 were presented on Tuesday, May 8, instead of Monday, May 7, as scheduled because of an unanticipated change of plans.

8. Seating for Kennedy groups was not as comfortable because the library floor is not carpeted. Also, the room was not as dark as in the other schools for the slide presentation because of the lighting conditions.

9. Groups which included alternate students because of absences were told their names had been selected by a computer. This explanation proved valuable as one of the teachers stated a certain parent might object to the selective grouping. In that school, the slide show presentation was brought back for the whole class the following week.

10. With Groups 7 and 8, Longfellow, May 11, the experimenter was introduced by an aide. Group 9, Longfellow, May 11, was sent early by the teacher, and there was, consequently, a delay in setting up the slide show.

11. Two groups spontaneously applauded (Group 1, Margaret Leary, May 4, and Group 3, Longfellow, May 11).

12. Delivery of the story was very standardized for Groups 1, 2, 4, 5, 7, and 8, although responsiveness of the students varied, Groups 4 and 5 being least responsive, as observed by the researcher.

13. One of the students (512) used a red pencil.
14. Other deviations included: one loudspeaker interruption (May 4, Group 1) and students returning library books (May 11, Group 7 and Group 8).

15. Other deviations included: one loudspeaker interruption (May 4, Group 1) and students returning library books (May 11, Group 7 and Group 8).
APPENDIX D

STANDARDIZED DATA ON COMPARABLE STUDENT GROUPS
### 1982-1983 Standardized Data on Comparable Student Groups in Study

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Terms: Grade 2 = Grade 2 students were the actual third graders in this study.

x = Mean Otis Ability Score

Stanine = Stanine band

*Accelerated Learner Program students not included in this data.
Dear Dr. Sullivan:

As you know I am working on my doctoral dissertation at Montana State University. I am hoping you will give your approval for me to do a study this school year with third grade students from the Butte School District. If you give your permission, I am hoping you will submit this letter to Superintendent Mr. Milligan for his approval.

The study I am proposing is a comparison of three modes of story presentation: a sound slide show, a book and reader and a story teller. The study ties in closely with library-media concerns since all three modes of story presentation are common in school libraries. The purpose of the study is to determine whether each mode brings different content to the foreground of the children's attention.

Altogether approximately 125 students would be involved. I would like to use four different schools - one for the piloting to determine instrument reliability, and three for the actual study. I would like to be able to use schools designated by Mr. Milligan and yourself as "average" Butte schools.

For the actual study, each student would only be involved for about 40 minutes. The presentations would tie in closely with a library and/or literature presentation, since a fairy tale is being used for the story, and hopefully the presentations would be enriching and enjoyable for the students.

I appreciate your consideration of my request and will be happy to furnish any additional information you or Mr. Milligan would like to have. Thank you very much for your time!

Sincerely,

[Signature]

Margaret Rolando

September 7, 1983
August 3, 1984

Margaret Rolando
2725 St. Anns
Butte, Montana 59701

Dear Mrs. Rolando:

This is to verify that you received permission from both Superintendent William Milligan and myself during the Fall of 1983 to conduct your doctoral research in Butte School District No. 1. In addition, permission was granted by all the principals of the schools involved prior to conducting the research.

Sincerely,

Dr. Tim Sullivan
Curriculum Director
May 31, 1983

Ms. Margaret Rolando
2725 St. Ann’s
Butte, MT 59701

Dear Ms. Rolando:

We hereby grant you permission to use the name
Weston Woods in accordance with the request made in your
letter of May 22, 1983.

I would be interested in seeing a copy of your
dissertation upon completion, if it would be practical
for you to share it with me.

With best wishes for the success of your project,

Sincerely,

Morton Schindel

Morton Schindel

MS:br

weston woods studios  weston, ct. 06883
Telephone 800-743-5020/Connecticut 203/226-3355
July 5, 1983

Ms. Margaret Rolando
2725 St. Ann's
Butte, MT 59701

Dear Ms. Rolando:

This will confirm our conversation of this morning that we will grant you permission without charge to utilize THE WILD SWANS by Hans Christian Andersen, retold by Amy Ehrlich, and illustrated by Susan Jeffers in your dissertation, now tentatively titled THE STORY TELLER, THE READER, AND THE MEDIA: An Investigation of Children's Perceptions of Story Context as Illustrated by Three Modes of Presentation, as partial fulfillment of the degree requirements at Montana State University in Bozeman, Montana. It is agreed that you will fully credit author, illustrator and publisher of the title.

It is further understood, that this permission covers use for your dissertation in unpublished form only. In the event that your dissertation should be published, in whole or in part, you will need to reapply to us.

With all best wishes for a very successful work.

Sincerely yours,

Christopher M. Franceschelli
Subsidiary Rights Manager
An investigation of children's perceptions...