The Effect of Content, Style, and Color of Picture Prompts on Narrative Writing: An Analysis of Fifth and Eighth Grade Students' Writing

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(ABSTRACT)

Current assessment practices for writing are moving away from the traditional objective test and towards performance-based assessment. The use of picture prompts to elicit writing samples is a common practice but it adds a level of complexity to the writing process. Writing tasks which use pictures to elicit writing samples require the writer to interpret the picture, create meaning from the picture, and then transfer the visual information into a verbal mode of expression.

The purpose of this study is to examine the characteristics of style and color of picture prompts while holding content constant. Four independent variables were investigated: style, (photograph, drawing), color (color, black and white), content (delivery man with a box, cliff rescue), and grade-level (fifth, eighth). Ratings of the students' stories served as the dependent variable. Each story was scored by two raters on three dimensions: narrative, descriptive, and events. These scores were added together to obtain a total score. The overall design was a four factor repeated measures ANOVA with grade level, style, and color as between subject factors and content as a within subject factor. A total of six ANOVAs were conducted, one each for the total score, narrative component, descriptive component, events component, prior events item, and after events item.

Results of the ANOVA for total scores indicate that the main effect for content was significant, as was the content by style interaction. The main effects for color and style were not significant, nor did these factors yield significant interactions. Similar results were obtained in the analysis of the narrative and descriptive components. The main effect of content was not significant on the event component due to reversal of mean scores on the two items comprising this component. When ANOVAs were conducted on the two items comprising this component, the main effect for content was significant for both items. Also of interest is that the main effect for grade level was significant for the total scores, descriptive component, events component, and prior events, but was not significant for the narrative component or after events item.

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INTRODUCTION

Current assessment practices for writing are moving away from the traditional objective test and towards performance-based assessment (Breland, 1996). For example, 27 states elicit some form of writing sample as part of their state mandated testing programs (Bond & Roeber, 1995). These testing programs can have an impact on both students and schools. Four states use assessment scores to determine whether students pass to the next grade (Indiana, Louisiana, Mew Mexico, and South Carolina) and eighteen states use assessment scores to determine whether students graduate from high school. In 23 states, schools systems can face consequences for student performance, including decreases in funding, loss of accreditation, or even a take-over by the state (Bond & Roeber, 1995). They may also incur benefit; for example, in Texas, student gains in test scores can translate into increased school-level funding through the distribution of bonuses (Alejandro, 1997).

The use of picture prompts to elicit writing samples is a common practice in performance-based assessment for writing skills, and many classroom activities and tests exist which use visual cues as a catalyst for writing. Picture prompts are used to generate writing samples in achievement batteries such as the Peabody Individual Achievement Test-Revised (PIAT-R; Dunn & Markwardt, 1989), the Wechsler Individual Achievement Test-Revised (WIAT-R; Psychological Corporation, 1990), and the Woodcock-Johnson Psycho-Educational Battery-Revised (WJ-R; Woodcock & Johnson, 1989) and in state-mandated assessments such as the Colorado Writing Assessment (Colorado State Department of Education, 1987), the Ohio Fourth Grade Proficiency Test (Ohio State Department of Education, 1996) and the Texas Academic Skills Program (Alejandro, 1997). For the most part, the design of these measures has "not been based on research or theory, and some methods violate those recommendations which have been made by researchers and theorists" (Cole, Muenz, Ouchi, Kaufman, & Kaufman, 1997, p. 1). Picture prompts used in the Texas state-mandated writing test were characterized by one Texas public school teacher as "cartoon line drawings, the quality of which was disgusting to the imagination of any child who had ever held a crayon" (Alejandro, 1997, p. 795).

If the quality of writing is affected by the pictorial stimulus used to produce that writing, then an overriding factor in the development of performance-based writing tests that use pictures should be the creation of pictures whose characteristics foster, rather than hinder, the writing process. In order to identify those characteristics of pictures which best stimulate written expression, it is first necessary to understand how the mind processes pictures, what developmental constraints exists in the interpretation of pictures, and what role pictures can play in stimulating writing.

The brain processes visual and verbal information in distinctly different ways, utilizing two specialized substructures, one for visual images and one for verbal language (Paivio, 1979). These two substructures give the brain the ability to think both verbally

and through the use of mental imagery. An underlying premise for integrating pictures into writing activities is that mental imagery is viewed as holistic and creative while mental verbal processes are viewed as linear and analytical (Arnheim, 1993). Paivio (1979) states this succinctly, "verbal behavior mediated by imagery is likely to be more flexible and creative than that mediated by the verbal symbolic system" (p. 435).

Pictures, because they are processed in the image substructure, are assumed to be a way of triggering mental imagery and therefore to produce more creative writing (Sinatra, 1986). Whether or not this is actually the case has not been shown by existing research. It is dependent upon such factors as the ability of individuals to interpret pictures, to use pictures as a stimulus for mental imagery and to access prior knowledge, and to transfer mental imagery into verbal language. Children have developmental constraints that hinder this process both in the interpretation of pictures (Bingham, Rembold & Yussen, 1981; Parsons, 1987) and in the production of writing (Bereiter, 1980; Tamburrini, 1983).

One justification for the practice of using picture prompts for writing is that this type of stimulus, along with music and verbal fragments, is best at triggering unstructured, associational, or fantasy writing (Keech, 1979). From an information processing perspective, written prompts, particularly the use of "interesting and familiar" topics can provide examinees with very different amounts of information due to the background knowledge of the student. Research has provided a substantial amount of empirical evidence regarding large error variance due to participant-by-topic interactions using written prompts (Pitts, 1978; Quellmalz, 1979). Another problem avoided by using pictures is the reading level of the examinee; picture prompts provide all relevant information in a visual form and possibly aid in the organization of that information (Baker & Quellmalz, 1979a; Sinatra, 1976).

While picture prompts address some of the problems associated with eliciting writing samples, the use of picture prompts adds a level of complexity to the process. Yenawine (1997) defines the term "visual literacy" as "the ability to find meaning in imagery" (p. 845). As individuals construct meaning from pictures, many cognitive processes are called into play such as personal association, analyzing, synthesizing, questioning, and categorizing (Yenawine, 1997). Writing tasks which use pictures to elicit writing samples require the writer to interpret the picture, create meaning from the picture, and then transfer the visual information into a verbal mode of expression. Picture prompts are therefore testing not only a student's writing ability, but also their ability to interpret pictures and to transfer knowledge between alternative modes of cognition.

One reason why test designers ignore the additional skills of interpretation and transfer is that traditionally the American educational system has ignored the teaching of visual literacy and visual thinking (Arnheim, 1980, 1986; Eisner, 1994). A fundamental philosophy in western education, since Descartes first separated the mind from the body, is that perception simply occurs -- it does not need to be taught (Eisner, 1993). Because images are far more representational of reality than words (Gibson, 1966), and are

perceived in a *gestalt* manner (Arnheim, 1974), interpretation of pictures is often viewed as a perceptual rather than a cognitive process (Eisner, 1993a).

Many classroom activities and tests exist which use visual cues as a stimulus for writing. There is little research, however, on what effect visual characteristics have on the writing process. However, a review of the literature did identify numerous variables which may affect children's ability to respond to pictures and to produce narrative passages. These include age, style, color, content, complexity, gender, instructions, teaching style, learning style, writing strategy, and stance. While research shows that children place an overwhelming emphasis on content in both pictures and writing, there appears to be a dearth of studies which control for this variable or examine it directly. With the exception of the study by Cole and colleagues (1997), none of the studies which used pictures as prompts for writing controlled for content or style. Given the findings on children's almost exclusive fixation on content in interpreting pictures, it is likely that failure to control for content confounded the results in these studies.

Content, or the subject matter of pictures used as prompts for writing, has been shown to have an effect on the production of narratives. In particular, the use of pictures that show interaction between characters and an unresolved conflict produce better narratives (Cole et al., 1997). In addition, Sinatra found that the composition of pictures can aid in organizing the writing produced (1986).

While studies indicate that younger children are insensitive to style at least when style is confounded by content, children do seem to interpret style in a content based-manner; on a realistic to pretend continuum (Bencetic, 1960). As such, it is possible that children would be more inclined to generate stories based on "less real" styles such as cartoons or illustrations and more descriptive passages with the "more real" styles such as photographs.

Color is a factor in children's preference for pictures (Myatt & Carter, 1979; Rudisell, 1952; Stewig, 1974). The one study which compared writing samples from both color and black and white pictures found that black and white pictures produced better writing. This study did not control for content, however, and was not examining types of writing but rather syntactic complexity within the narrative form (Golub & Frederick, 1970). Many tests utilize black and white line drawings, so examination of color when controlling for content should provide additional information on whether color or black and white pictures are most effective in writing elicitation tasks.

Age has been shown to be a factor in the shift from descriptive to narrative writing as well as in the quality of written responses to picture prompts. It may be that a study involving only elementary school students would show no differences between picture styles but that middle school and high school students, with their greater sensitivity to style and their greater ability to produce narrative passages, would show differences (Gardner, 1970, 1994; Winner, 1982).

Gender has been shown to be a factor in the production of writing, in quality and quantity, in the theme and characterizations in stories, and in writing to please teachers. Other factors, which are explained in the literature review, have been shown to have an effect on the quality of narrative writing. These include: teaching style, learning style, contingent versus non-contingent teacher/student interaction style, writing strategy, top-down/bottom-up processing, and efferent versus aesthetic stance. While important factors to consider, these variables were identified in studies which utilized qualitative research methods over long periods of time and are, therefore, outside the scope of this study.

Purpose of the Study

The purpose of this study is to examine the characteristics of style and color of picture prompts while holding content constant. This study seeks to expand on existing research by looking at whether the artistic style and color of pictures used as prompts has an effect on the quality of narrative and descriptive writing produced by children. Three independent variables associated with pictures will be investigated: style (photograph versus drawing), color (color versus black and white), content (a static picture of a delivery man with a box versus a dynamic picture of a cliff rescue). A fourth independent variable, grade-level (fifth and eighth grade) was included to investigate development differences in children's abilities to use pictures as prompts for writing. Ratings of the student stories will serve as the dependent variable. Each story will be rated on three dimensions: narrative, descriptive, and events, and these will be added together to obtain an overall rating.

Research Questions

1. What effect does the content of pictures (static scene versus dynamic scene) used as prompts for narrative writing have on the writing produced?

2. What effect does the style of the picture (photograph versus drawing) used as a prompt for narrative writing have on the writing produced?

3. What effect does the color of the picture (black and white versus color) used as a prompt for narrative writing have on the writing produced?

4. What effect does grade level (fifth versus eighth) have on children's ability use utilize picture prompts as a stimulus for narrative writing?

Research Hypotheses

While analyses will be conducted on all variables and sub-scales, the following main effects and interactions are of interest to this study.

1. It is expected that the ratings assigned to eighth graders' stories will be higher than rating assigned to fifth graders' stories. This potential finding hold little theoretical interest in and of itself, with the exception that this difference is expected to be most pronounced for the events ratings.

2. Stories written in response to color pictures are expected to receive higher ratings than stories written in response to black and white pictures. However, this difference is expected to be most pronounced for the descriptive ratings.

3. Stories written in response to the more dynamic scene depicted in the “cliff rescue” pictures will elicit higher total scores than stories written in response to the static scene depicted in the "box" pictures. However, this difference is expected to be most pronounced on the narrative and events ratings.

4. There will be an interaction between grade level and color. Specifically, stories written in response to the color pictures will receive higher ratings overall, than the black and white pictures, but this difference will be larger for fifth graders than for eighth graders.

5. There will be an interaction between grade level and style. Specifically, stories written in response to the drawings will elicit higher total scores than stories written in response to photographs at the fifth grade level, whereas stories written in response to the photographs will elicit the higher total scores than stories written in response to the drawings at the eighth grade level. However, this difference is expected to be most pronounced on the narrative and events ratings.

Implications

An examination of the variables of style and color when content is held constant, will provide additional information on criteria used for constructing effective writing prompts. The study by Cole and colleagues (1994) demonstrated that content, in particular, the use of scenes that depict an unresolved conflict produces better narratives. However, the study did not control for content across types of pictures; one picture was a color photograph, the other a black and white line drawing. It is not known whether the content alone had an effect on the writing produced or whether using a photograph versus a line drawing, and using color versus black and white might also have had an effect. This study will examine these factors by controlling for content and analyzing the writing produced by various versions of the same picture. This has implications for many of the writing tests that typically employ line drawings as the picture prompts. It may be that line drawings are not as effective as other types of pictures in eliciting narratives. In

addition, the Cole study used 50 participants who ranged in age from 13 to 46 years old. According to Gardner (1970), children's responses to pictures mirror those of adults by around age fourteen. This study will include fifth graders and eighth graders in order to examine the effect of age on writing elicited from picture prompts.

Limitations and Delimitations

The results reported in this study are limited to only those responses written by students whose papers are legible, and who complete both writing tasks. The following delimitations are also placed on this study:

1. Only fifth and eighth grade students from a single public school system will be asked to participate.

2. Photographs and drawings will be the only styles used as writing prompts.

3. Mechanics will not be considered as a factor in writing quality.

4. Writing samples of students for whom English is a second language will not be used.

5. Writing samples of students exempt from taking the Virginia state-mandated Standards of Learning assessments will not be used.

Chapter II

REVIEW OF THE RELATED LITERATURE

This study examined whether the content, style, or color of pictures used as prompts for writing had an effect on the quality of narrative essays produced by fifth and eighth grade students. The review of the literature has four subsections related to this topic: (a) interconnections between visual and verbal literacy, (b) visual literacy and the perception and interpretation of pictures, (c) verbal literacy and the writing process, (d) the use of pictures to prompt writing.

Interconnections between Visual and Verbal Literacy

The visual and verbal literacies are interconnected systems for creating meaning from our environment and communicating that meaning to others. This section provides an overview of how these literacies are interconnected, in particular as it relates to (a) developmental stages, (b) visual literacy and the American Educational system, (c) similarities and differences between words and pictures, and (d) information processing and memory models.

Visual language has always been a primary means of communication. Until the invention of the printing press and universal education, people with low levels of written literacy relied heavily on pictures to both receive and convey information (Bookbinder, 1975). This integration of visual and written languages can be seen in the fact that in both the Egyptian and Greek languages the same word was used for both drawing and writing (Brennan, 1990). Writing slowly evolved from pictograms, using pictures to represent ideas, to phonograms, using pictures to represent sounds, to the development of alphabets. This evolution from pictograms towards an alphabetic system became necessary as humans began to communicate increasingly abstract concepts (Gregory, 1970).

Developmental Stages

Just as the development of written language had its roots in visual language, so the development of written language skills in children has its roots in visual language skills. "Imaging is the mode of our most primitive thinking and storytelling the earliest product" (Langer, 1978, p. 132). The development of literacy in children is a complex process that involves five distinct, but interrelated literacies. Sinatra (1986), identifies the "five faces of literacy" (p. ix) as: (a) visual literacy as primary, (b) oral literacy, (c) written literacy, (d) visual literacy as representational, and (e) computer and technological literacies. These literacies develop in overlapping, interactive stages starting with visual literacy in the first months of life, and then oral literacy as children begin to speak. By the time children reach school age, they are usually developmentally ready to proceed to the third stage, written literacy, in which they learn to read and write (Sinatra, 1986). The development of reading and writing skills is dependent on the previous development of visual and oral literacy. Children's understanding of both the

visual and oral symbol systems serve as a transition to understanding the writing symbol system (Sinatra, 1986).

Children's first forms of recorded communication are drawings; it would seem to make sense, therefore, to use pictures as an aid in teaching writing (Bates, 1991). Furthermore, an analogous relationship exists between verbal and picture comprehension. Both involve cognitive processes in which the reader/viewer must transpose either digital or analogic codes to create personal meaning. Although each relies on a different system of rules for interpretation, an underlying premise is what Sigel (1978) terms "conservation of meaning." Conservation of meaning occurs when the meaning of an object remains unchanged even though the media in which it is represented can vary. Thus, a drawing of an apple, a description of an apple, or a model of an apple, do not alter an apple's basic meaning. Children acquire this principle through experience; by manipulating objects, and gradually come to understand the concepts of constancy and diversity (Sinatra, 1986).

Visual Literacy and the American Educational System

Traditionally, at least since Descartes separated the mind from the body, "educators in the western world have regarded the senses as *cognitio inferior* -- minor resources in the human's quest to understand" (Eisner, 1993b, p. 80). Education has separated the perceptual processes of visualizing and learning from visuals from the cognitive processes of verbalizing and has concentrated on teaching the latter (Arnheim, 1993). This marginalization of perceptions as a source of learning is deeply ingrained in the American educational system (Eisner, 1993a). It is increasingly apparent, however, that visual perception is a cognitive process (Eisner, 1993b). "Without separating the intellect from sensory experience visual thinking makes the mind work as a whole" (Arnheim, 1993, p. 96).

Gardner's (1993) theory of multiple intelligences identifies seven categories of intelligence: linguistic, logical-mathematical, musical, spatial, bodily-kinesthetic, intrapersonal, and interpersonal. American education and culture has traditionally valued linguistic and logical-mathematical intelligence while neglecting the other intelligences (Sweet, 1997). Rapid advances in technology and electronic media have made the integration of visual literacy into the curriculum essential (Wilson, 1988). "In our age visual and verbal messages are so commonly intertwined that to persist in teaching the two skills in isolation is to undermine our credibility in the eyes of students who watch television, read magazines, and see all around them the togetherness of words and pictures" (Autrey, 1984, p. 7). The reintegration of visual learning with verbal learning within the curriculum is necessary to provide a more holistic approach to learning (Eisner, 1993b).

Ideally, education is a process that fosters a student's ability to construct meaning (Bruner, 1990). The construction of meaning can make use of many forms of communication, both perceptual and cognitive. A broadening of the definition of literacy to include non-verbal forms of communication will diversify learning and make

schooling more relevant for those students whose aptitudes lie outside of the verbal or logical-mathematical areas (Sweet, 1997). This call for a broadening of the definition of literacy is not new. As first television and then computers rose to prominence in the lives of children, this same idea has been proposed by numerous others during the past twenty five years (Arnheim, 1980; Debes, 1974; Eisner, 1993; Sinatra, 1973).

Similarities and Differences Between Words and Pictures

Both words and pictures are signs; they refer to things other than themselves (Knowlton, 1966). Knowlton further states, however, that pictures and words employ different vehicles by which they convey meaning. Pictures are iconic in nature, they resemble their referent; words are digital, they are arbitrary and bear no relationship to their referent. Pictures, like words, however, are abstractions of reality; just as we must bring meaning to words, so we also bring meaning to pictures (Wendt, 1956). Solso (1994) points out that words and pictures are similar in that both have three distinct levels of processing. The first level is the surface level which relies on physical features; the squiggles of writing on the page, or the lines, shapes and textures of a picture. The second level of process is the semantic level; which is the content of the written message or the identification of lines and colors as recognizable shapes: a tree, a hat, a person. The third level of processing involves taking the features and the semantic interpretation of the features and constructing meaning from them.

Despite similarities between words and pictures, there are also profound differences. Visual literacy is seen as perceptual in nature while verbal literacy is perceived as cognitive in nature (Arnheim, 1993). Both types of literacies are based on consensual symbol systems; conventions or rules which are agreed upon in order to convey meaning within a culture (Kellogg, 1994), but the visual symbol system is viewed as less abstract and easier to master than verbal symbol systems. Visual language is iconic in nature; it resembles whatever it is designed to depict. Verbal language, in contrast, is completely symbolic; there is no direct correlation between the letters on the page and the meaning conveyed by those letters. Words, grammar, and syntax, must all be defined and learned (Pettersson, 1988). Langer (1976) calls verbal language discursive and suggests it is a tool for denotation, while visual language is presentational and is a tool for connotation.

Verbal languages are by their nature sequential, with meaning obtained over time. Pictures, on the other hand are simultaneous, with meaning derived instantaneously (Eisner, 1993b). This holistic processing of pictures gives visual language the ability to convey meanings that are almost impossible to convey verbally. Pictures can be used to simultaneously depict two different elements in order to show commonalties or relationships that might be difficult to describe verbally (Debes, 1976). The reverse is also true, abstract concepts such as democracy can be difficult to convey in a picture (Pettersson, 1986).

Information Processing and Memory Models

Different forms of external representations to convey information can make possible the encoding and decoding of different forms of internal meaning (Eisner, 1994). Just as cultures have consensual symbol systems, individuals have private symbol systems which include mental imagery, associations, and dreams (Kellogg, 1994). Cognitive psychology calls these private symbol systems "mental representations". Representations are internal symbol structures we use to encode, process, and store our experiences in memory (Bruer, 1994).

The information processing model of cognition uses the computer as a metaphor to explain how humans acquire, process, and use information. This model divides the memory system into three parts: sensory registers, short-term memory, and long-term memory. Information passes through the sensory registers into short-term memory where it is held until it is either used for decision making, discarded, or stored in long-term memory (Miller & Burton, 1994). Three types of models have been proposed to explain how information is represented in long-term memory; dual coding, amodal coding, and hybrid models which are a combination of both (Snodgrass, 1984).

The dual coding theory proposed by Paivio (1979) states that information is encoded in two separate but interrelated systems, a verbal system which stores linguistic information, and a non-verbal system which stores visual-spatial information and mental imagery. The interconnectivity of the two systems allows individuals to transfer information between the systems, so that a person listening to, or reading words might engage in mental imagery, or a person viewing a picture might internally verbalize information about that picture (Miller & Burton, 1994). Information that can be encoded in both systems is more likely to be remembered, and is elaborated on, resulting in increased comprehension (Mayer & Anderson, 1991; Sadoski, Goetz & Fritz, 1993)

In contrast, the single code theory, while not denying the existence of mental imagery, proposes that information is stored in a common system that is essentially conceptual and prepositional as opposed to sensory or pictorial in nature (Pylyshyn, 1974). Pylyshyn further argues that while verbal and visual mediators exist in the cognitive system, they are quite possibly not the only mediators. He states that "cognition may be mediated by something quite different from either pictures or words, different in fact from anything which can be observed" (Pylyshyn, p. 6).

The sensory-semantic model proposed by Nelson (as cited in Levie, 1987) theorizes that pictorial superiority is accounted for by a more distinctive sensory code for pictures and the ability of pictures to be processed both directly and semantically. A multilevel model was proposed by Snodgrass (1984), in which separate verbal and nonverbal systems pass information on to a single propositional store. Other researchers argue that these models are too narrow. For example, human faces may constitute a distinctive class of stimuli that might be processed by a separate memory system (Deffenbacher, Carr, & Leu, 1981). Furthermore, it is highly likely that "knowledge can

be represented in a variety of ways, depending on the task, the modality, and the mental operations involved" (Levie, p. 10).

Summary and Implications for this Study

Visual and verbal literacies are inextricably linked to one another although, typically, educational systems tend to over-emphasize verbal literacies at the expense of visual literacy, to the detriment of both (Arnheim, 1993; Debes, 1974; Eisner, 1994; Sinatra, 1986). It is a mistake to assume that children learn to create meaning from pictures simply through exposure (Yenawine, 1997). Children develop skills in using both literacies in an interactive and overlapping manner, with visual literacy appearing first, then oral literacy, and then written literacy (Sinatra, 1986). There are both similarities and differences between the literacies. These differences between visual and verbal literacies are mirrored in the memory models of Paivio (1979), Pylyshyn (1974) and Snodgrass (1984). While these models differ on how information is processed and eventually stored, all models recognize that both internal verbalization and visualization occur. In particular, the dual coding theory of memory has implications for visualization and the use of pictures and imaging in the production of written language. Dake (1995) echoes Pavio when he states, "Visual discourse's greatest contribution to human knowledge and thought is not the sequential, linear, analytical text but the encompassing and holistic visual image. The former is rule-driven and literally based while the latter is ambiguous, holistically rich, synthetic, and metaphoric in meaning" (p. 1-2). Thus the ability to use pictures and imaging in the process of story writing should produce richer, higher quality writing.

Visual Literacy and the Perception and Interpretation of Pictures

Perception and interpretation of pictures are the processes by which humans create meaning from pictures (Solso, 1994). An understanding of these processes is important to the design of effective picture prompts. In addition, how children perceive and interpret pictures can have implications for the use of pictures in the writing process (Petterson, 1988, 1995; Sinatra, 1984, 1996). This section is divided into the following relevant topics: (a) perception of pictures, (b) interpretation of pictures, (c) developmental stages, (d) studies in the interpretation of pictures (e) influence of style on the use and interpretation of pictures, and (f) picture preferences.

Theories involving art and the interpretation of pictures depend on three branches of psychological theories: the study of perception, the study of emotions, and the study of imagination and fantasy. These psychological theories explain how individuals respond aesthetically to, and create meaning from, works of art and visual forms (Vygotsky, 1971). Visual forms consist of seven elements; position, size, color, shape, line, texture, and density (Weismann, 1974). These seven visual elements embedded in pictures have the potential to express emotions and convey meaning (Arnheim, 1974). Furthermore, in viewing pictures, "the participant is called upon to engage in an interchange of intellect and emotion in a context that allows for both individual and communal response" (Kiefer,

1997, p. 820). The process by which this occurs can be seen in a number of models of perception and interpretation of pictures.

Perception of Pictures

Theories of perception fall into three broadly defined categories: (a) behaviorist, which emphasizes the response variable and adaptive behaviors, (b) constructivist (Gombrich, 1972), cognitive (Gregory, 1970), gestalt psychology (Arnheim, 1974) theories, all of which stress the perceiver's contribution and internal activity, and (c) the ecological theory of Gibson (1980) which places importance on the structure of the stimulus and the environment in which the stimulus occurs. Each of these approaches to perception emphasizes a particular aspect of perception at the expense of the other relevant factors (Machamer, 1980).

A central issue in the study of perceptual psychology is whether visual stimuli are perceived directly or indirectly. The theory of direct perception states that sensory information is, by itself, sufficient for a person to accurately perceive the world. This theory is espoused by Gibson (1980) who feels that pictures need to be "ecologically valid," that is, they are only perceived accurately in real world circumstances. Attempts to study perception under experimental or "ecologically invalid" conditions produce indirect perception. The theory of indirect perception was first proposed by Helmholtz (as cited in Solso, 1994) during the nineteenth century. It bears a relationship to constructivism in that it proposes that individual perceptions are constructed from inferences about the real world (Solso, 1994). Thus, personal experience becomes a mediating factor in the perception of visual forms.

Solso (1994) offers an interactive, cyclical model of artistic perception and cognition which consists of a three-stage process. Each of these stages engages a particular part of the brain, and the systems interact to engage several areas of the brain simultaneously. Stage one occurs when visual information is received by the eye in the form of primitive processing of basic shapes, lines, and colors. During stage two the information received in stage one is organized into fundamental forms. These forms are then given meaning during the third stage of processing when interpretation of the picture occurs by accessing prior knowledge, associations, and semantic processing. While the stages are described here in discrete terms, they are in reality a *gestalt*, in which the steps are interrelated, interactive, and mutually influential (Stern & Robinson, 1994).

Perception of pictures is also theorized to consist of two phases: a rapid overview, the "pre-attentive" phase, followed by a conscious analysis, the "attentive" phase (Winn, 1993). At first glance we only perceive enough information to identify objects in a reasonably meaningful manner. This is known as Gibson's "principle of economy" (1966). Winn (1993) argues that reactions of an affective nature occur during the pre-attentive stage, while during the second or "attentive" phase reactions are cognitive in nature. The initial affective response to the picture during the pre-attentive phase will determine whether or not the viewer proceeds to the attentive phase, and once there, how deeply the picture is processed and interpreted.

Interpretation of Pictures

According to Gibson (1966) pictures are surrogates for reality: "a stimulus produced by another individual which is relatively specific to some object, place, or event not at present affecting the sense organs of the perceiving individual" (p. 2). As such, pictures are not substitutes for reality, but rather are mediators between the perceiver and reality, and are open to multiple interpretations based on the prior experiences of an individual. A model for decoding visuals, which includes an individual's prior knowledge, involves the two-stage process of "differentiation" and "interpretation" (Couch, Caropreso, Miller & Barry, 1994). In this model, during the differentiation stage, all decoding and classification of visual elements occurs. This stage is crucial because individuals cannot interpret pictures unless they can extract from the representation the literal or factual information embedded in the visual. During the second stage, interpretation, these elements evoke relevant meaning or schemata in the viewer. Thus interpretation involves taking the factual or literal information found in the picture and extending it within existing networks of meaning (Couch, et al., 1994).

Characteristics of both individuals and pictures can effect how meaning is created from pictures. The literature on interpretation of pictures is organized around the following sub-topics: (a) developmental stages, (b) age differences in the interpretation of pictures, (c) gender differences in the interpretation of pictures, (d) studies in the interpretation of pictures, (e) influence of style on the use and interpretation of pictures, (f) picture preferences, and (g) readability, complexity and aesthetic appeal.

Developmental Stages

The first step in the process of interpretation is the realization that pictures have a dual reality; they are objects in their own right, while at the same time depicting some other reality. The ability to recognize the dual reality of pictures is a developmental stage which Piaget (1954) terms "semiotic functioning," the ability to understand that one thing, the signifier, represents an object, the significate, that is not present at the time. Children typically develop semiotic functioning around the age of two or three (Sorce, 1980), however, young children and adults with little experience viewing pictures have difficulty in decoding information in pictures that are abstract, complex, or utilize cultural conventions (Levie, 1987).

Parsons (1987) identifies three stages of cognitive development in aesthetic responses to pictures in children. During the first stage, which Parsons (1987) terms "favoritism," a child's preference is paramount, there is little awareness of the point of view of others and liking a picture is identical to judging it. This stage is dominated by "an intuitive delight in most paintings, a strong attraction to color, and a freewheeling associative response to subject matter" (p. 22). Around the age of two or three, as children begin to perceive the dual reality of pictures, they enter into stage two, when subject matter becomes the focus. This stage Parsons (1987) terms "beauty and realism." Children's drawings become representational, and they value pictures that are realistic

and contain attractive subject matter (Gardner, 1994; Parsons, 1987). During stage two, an awareness of the viewpoint of others begins to emerge and with it the notion that what one personally associates with a picture is not necessarily what others see. At age five, a child will perceive the inability of others to interpret their drawings as the fault of the viewer, but by age seven the child will redraw the picture so that it makes sense to others (Gardner, 1994). During stage three, "expressiveness," individuals come to value pictures for their creativity, originality, and for their ability to convey feelings and provide interesting experiences. The transition from stage two to stage three is very gradual. Third graders use mainly stage two structures, eleventh graders, primarily third stage structures, while seventh graders use a mixture of both (Parsons, 1987). In the expressive stage, subject matter and beauty become secondary to the subjective theme of the picture and the unpleasantness or ugliness of a picture is no longer automatically bad (Gardner 1994; Parsons, 1987). Realism only remains important in as much as it becomes a vehicle for expression; emotional realism replaces pictorial realism as an important aspect of pictures. In contrast with stage two, expressive characteristics of nonrepresentational styles can now be appreciated. The awareness of the viewpoint of others also expands, and children become aware of the use of pictures to convey the emotions and experiences of others (Parsons, 1987).

Age differences in the interpretation of pictures. Bencetic (1960) found that children have a different way of interpreting style than adults; children view artistic style on a realistic to pretend continuum, rather than the realistic to abstract continuum. This alternative continuum which is content-based, rather than stylistically-based, is related to the developmental stages of aesthetic response proposed by Parsons (1987). The tendency to fixate on the content of pictures to the exclusion of other elements was confirmed in a study by Stewig (1995). In a study of second, fifth, and eighth graders, Bingham and colleagues (1981) found that the ability to identify the main idea in pictures increases with age. Rembold and Yussen (1983) confirmed these findings in another study of second, fifth, and eighth graders.

Studies have also shown that children prefer realistic pictures to abstract pictures (Child, 1971, Child & Iwao, 1973; Ramsey, 1979, 1982, 1989). Again, the reason for this preference is that realistic pictures contain recognizable content. For children, "sloppy" paintings, or elements which do not conform to reality, (e.g., a headless juggler in Chagall's *Le Grande Cirque*) are viewed as mistakes. It is not until adolescence that they begin to sense that these elements might be symbolic and deliberate on the part of the artist. Color is an important factor in pictures which is recognized by children as having the ability to convey moods (Parsons, 1987).

Gender differences in the interpretation of pictures. While there have been studies on gender differences in children's preferences for pictures (Child, 1971, Child & Iwao, 1973; Ramsey, 1979, 1982, 1989), studies of gender differences in children's interpretations of pictures are lacking. Dwyer (1971) found that gender was not a variable in adolescents' ability to learn from pictures accompanied by text. However, the study by Samson and Wescott (1983) found significant interaction between gender and picture complexity. Boys generated more story events in response to both low and high level

complexity pictures while girls generated more story events in response to medium level complexity pictures. The same interaction was noted but did not reach significance for number of words and number of characters. A study of the responses of undergraduates to "female-interest pictures" and "male-interest" pictures found that subject matter was an important variable in the responses of males and females (Crawford, Chaffin & Glenn, 1983). In a study of undergraduate and graduate students, Ogden (1993) found that males made more content specific comments about pictures, while females produced more "general" or interpretive comments. Males and females did not differ, however, in their ability to interpret pictures of varying complexity.

Studies in the Interpretation of Images

Once a picture has been perceived, interpretation of the picture will occur based on the context in which it is presented (Gibson, 1980), the affective response (Winn, 1993), and the prior knowledge that the perceiver brings to the event (Gombrich, 1972). The biological features which allow individuals to perceive and process visual forms are determined by nature, are invariant, and are more or less similar in all humans (Solso, 1994). However, using similar faculties, individuals interpret the same visuals in vastly different ways (Pettersson, 1988). "Our prior experience, inferences, expectations, beliefs, physical state, and other factors determine what we see as surely as the stimulus before us" (Miller & Burton, 1994, p. 78).

With the exception of the studies by Pettersson (1986, 1988, 1995), there are few studies on the interpretation of pictures other than picture naming tasks designed to test various coding theories. Pettersson (1986) found that when pictures depicting concrete objects are used to elicit brief description, different participants usually interpreted the same picture in a similar manner. This replicates the findings of Snodgrass and Vanderwart (1980) who found that 80 percent of the responses to pictures were in agreement across participants on a picture-naming task. A second study by Pettersson (1986), using the identical picture set from the brief description study, elicited detailed descriptions from a different set of participants. In this study the results were very different; the overall number of words generated rose substantially, while agreement dropped from 60.5 percent of the participants in the brief description task to 29.6 percent of the participants in the detailed description task. A study by Pettersson (1986) which elicited brief descriptions of pictures depicting abstract concepts such as courage, togetherness, and credibility generated a wide range of responses with very poor agreement between the intended and perceived content of the picture. Pettersson (1988) also studied viewers' interpretations of six pictures used as advertisements. In this case the verbal descriptions were removed from the pictures and participants were asked to name the product being advertised. Four of the six pictures caused all of the participants to associate them with the wrong product, and the remaining two pictures had low association rates. In a fifth study, participants were shown a series of slides and asked to write associations that came to mind as a result of viewing the pictures. The initial stimulus triggered a wide variety of associations in the participants. In a review of his research, Pettersson (1995) concludes that (a) picture interpretation varies widely according to individuals, (b) the task and time on task can affect interpretation, (c)

pictures with abstract content are perceived in more ways than pictures with concrete content, (d) texts accompanying pictures to some degree revise our understanding of the pictures, and (e) pictures can trigger strings of mental associations which vary from individual to individual.

Influence of Style on the Use and Interpretation of Pictures

Different styles of art affect people in different ways. Some individuals prefer abstract pictures, some impressionism, others the realism of photography. "Every style is but one valid way of looking at the world" (Arnheim, 1974, p. 461). All styles are to some degree representational, in that all pictures are representations of reality, not reality itself. Therefore, even the most abstract picture is not without a theme (Solso, 1994). Sensitivity to style is the result of an ability to detect reoccurring patterns or textures (Winner, 1982).

While adults can recognize variations in style, in many cases, children cannot. Two studies by Gardner (1970, 1994) demonstrated that until about the age of fourteen, when children are asked to match pictures on style, they will match on the basis of content instead. However, when content is controlled, for example, all the pictures are still lifes, or the pictures are non-representational, then children have no problem matching pictures on the basis of style. Findings from these studies indicate that the ability to perceive stylistic differences develops in early in children but content will override stylistic consideration. A qualitative study by Stewig (1995) supports the findings that young children talk almost exclusively about the content of pictures.

Even though children may not be consciously aware of stylistic differences, these differences can influence children's ability to understand and interpret picture books. In a qualitative study of third and fourth grade children and picture books, Day (1996) found that the stylistic convention of exaggerated perspective made the illustrations in one story difficult to interpret. Furthermore, while young children may not grasp the concept of style, they are able to recognize some aspects of stylistic differences such as color and to see similarities between works by the same illustrator. They cannot, however, recognize differences in line, technique, or media (Cianciolo, 1991). In contrast to the studies by Cianciolo (1991) and Stewig (1995), oral responses in a qualitative study of first and second graders' responses to pictures indicate that even first graders can comment on stylistic elements such as media, texture, and brush strokes. Children were also aware of mood and the impact of the pictures on their own feelings (Kiefer, 1983).

In a study by Gardner (1970), ten-year-olds were given training sessions in which they were reinforced for sorting pictures by style, but not by content. Comments elicited from the students indicate that two strategies were employed to identify style, an intuitive, global judgement of overall similarity, and a reliance on texture. Exposure to different styles of art can also facilitate style discrimination in children as well as have an effect on their own production of pictures, influencing the generation of more varied textures and blended colors (Silverman, Winner, Rosenstiel, & Gardner, 1975).

Picture Preferences

Pictures which trigger an affective response in the viewer are more likely to be deeply processed and interpreted (Winn, 1993). Therefore, an examination of picture preferences in children should yield information on types of pictures that are more likely to be deeply processed. Studies have found that style, color, content, readability, complexity, and aesthetic appeal were the major factors in children's picture preferences.

Style. There have been a number of studies which indicate that age is a factor in preference for realism in pictures (Parsons, 1987). Preschool children tend to prefer abstract pictures over realistic and stylized paintings (Bowker & Sawyers, 1988; Gardner, Winner, & Kircher, 1975). Studies also indicate that there is a steady rise and then decline in the importance of realism in pictures. This process begins around the age of six, reaches its height at around age eleven, and then declines until the age of fifteen at which point preferences match those of adults (Gardner, Winner, & Kircher, 1975; Machotka, 1966). It has also been found, however, that exposure to different art styles can increase the preference for those styles in children (Bowker & Sawyers, 1988; Stewig, 1994; Winner, 1982).

Realism is a continuum that encompasses many styles of art, ranging from color photographs at one end of the continuum to expressionistic, cubist, and other modern art styles at the other end. For children the notion of "schematic realism" is important; that a picture represents what they know about the subject, and that it contains all the important elements of that subject. For example, a face should include eyes, nose and a mouth, all in their proper place. Studies that rank order children's preferences based on style alone, have found that children typically prefer whichever style is the most realistic among their choices. When a photograph is part of the picture set then the preference is for photographs first, and realistic drawings second (Myatt & Carter, 1979; Ramsey, 1979; Sloan, 1971). Hardiman (as cited in Ramsey, 1979) found that when photographs are not part of the picture set, then realistic pictures are preferred. When cartoons are used in the picture set, photographs are still preferred, but cartoons are the second preference (Ramsey, 1989). This contradicts older studies, in which cartoons are not either first or second choice (Lam, 1966; Myatt & Carter, 1979; Sloan, 1971). It may be that children have developed a preference for cartoons due to increased exposure through viewing television (Ramsey, 1989). Reasons given for preferring photographs are based on realistic aspects of the picture, "because it is real" (p. 48) while reasons for preferring cartoons were based the recognition of cartoons as a style (Ramsey, 1989).

Color. Among possible variables for picture preferences, color was found to rank second, after realism as a factor in children's preferences (Parsons, 1987), and to be preferred over black and white illustrations in instructional settings (Dwyer, 1971). In some respects it is related to the preference for realism. Chromatic (realistic) color adds to the realism of pictures and is preferred while unusual or unnatural colors are not. Within the range of natural colors, primary age children tend to prefer bright, saturated colors, while middle school children prefer lighter tints and pastels, and more earth tones (Hurt, 1987).

Numerous studies have been conducted in the use of color to aid in comprehension and retention of instruction. A study by Dwyer and Moore (1992) found that color drawings were superior to black and white line drawings in maximizing visual comprehension for field dependent students. It is interesting to note, however, that Dwyer (1971) found participants were poor judges of which picture was the most effective in learning; the ones they preferred (color) did not always generate the greatest retention of information or understanding of concepts.

Content. Preference in subject matter of pictures is also related to preference for realism. Children's perception of realism in pictures is to a certain extent linked to their ability to recognize the objects or information represented in the picture. The more able a child is to relate to objects in the picture, the more likely they are to prefer the picture (Hurt, 1987; Parsons, 1987). In addition, primary school children prefer pictures in which the subject matter is "beautiful." "As we learn what is beautiful, we learn also what is ugly. Ugliness is the shadow thrown by beauty; it is the failure to live up to the standards beauty sets" (Parsons, 1987, p. 41). Children equate beauty with goodness, and therefore they prefer pictures that are pleasant to look at such as pets, attractive people, and pretty landscapes. As children mature they develop a taste for nostalgic or sad, but not painful pictures, and for distressing, but not threatening subjects.

Readability, complexity, and aesthetic appeal. Studies conducted by Pettersson (1986) showed that picture readability is positively correlated with both aesthetic ratings and usefulness in teaching. Unlike criteria for determining readability of text, criteria for establishing readability and aesthetic appeal of pictures is ill-defined (Vrasidas & Lantz, 1995). One measure that has been developed is the Picture Readability Index. In studies ranking and rating pictures, Pettersson (1995) found that both children and adults preferred pictures with a high index value on the Picture Readability Index to pictures with low index values. Other studies (Parsons, 1987) have found that younger children prefer less complex compositions. A study by Chen (1997) found that high complexity pictures had an effect on the memory and comprehension of third graders but no effect on the memory and comprehension of sixth and eighth graders.

A study on children's aesthetic response to pictures found that the tendency to recognize affective qualities in pictures and to prefer pictures judged as aesthetically better by experts increases with age. One reason for this may be that many of the pictures judged by experts as aesthetically better in the study by Child (1971) also had more elaborate compositional structures (Parsons, 1987). Child also found that recognition of and preference for aesthetically better pictures was positively correlated across grade levels with measures for general tolerance of ambiguity, complexity, emotion, and novelty (Child, 1971).

Summary and Implications for this Study

Theories of perception generally divide the process into two or three parts with perception of the physical characteristics of the picture in the first stage or stages and

interpretation of the picture in the final stage. An affective response during the initial stage can determine how deeply the picture is processed. This has implications for the design of pictures as writing prompts. Pictures which are aesthetically pleasing, contain interesting subject matter, and contain content that children can understand are more likely to produce better writing than pictures without these characteristics.

Children's ability to interpret pictures gradually increases with age. Young children are insensitive to style, viewing style not on a realistic to abstract continuum, but rather, on a realistic to pretend continuum. The ability to identify style does not appear in children until adolescence; prior to that time pictures are identified on the basis of content. With the exception of preschool children (who prefer abstract styles), children overwhelmingly prefer realistic art beginning at age six, peaking at age eleven, and then declining until age fourteen when preferences match those of adults. This preference for realism in pictures appears to be content driven. For the most part, elementary school children interpret pictures solely on the basis of content, liking those pictures that are attractive and have personal meaning for them. Adolescents begin to understand symbolism in pictures and can increasingly relate to pictures in more abstract ways. This has implications for this study because it suggests that younger children may respond differently to pictures than older children. As such, it may be that some styles, color, and content of pictures used as writing prompts are more effective with younger children, while other styles, color, and content may be more effective with older children.

Verbal Literacy and the Writing Process

Writing is a complex process of creating verbal meaning which calls into effect an individual's task environment, motivation, prior knowledge, and cognitive skills (Hayes, 1996). Writing is a form of thinking (Kellogg, 1994), a type of behavior (Kirby & Liner, 1981), and an ill-defined problem (Bruer, 1994). In writing about a subject, individuals utilize their personal symbol systems to create connections between disparate concepts in their own minds. They then transform these symbols into the consensual symbol system of writing in order to share their thought and ideas with others (Kellogg, 1994). As such, the study of writing can lead to great insights into how the mind functions. There are several advantages to studying writing instead of other types of problem-solving, reasoning, and decision making tasks: the task requires both critical and creative thinking skills, it involves cognitive operations that play roles in many thinking tasks, and the product is replete with large and diverse quantities of information (Kellogg, 1994). This section is divided into the following relevant topics, (a) models of the writing process, (b) developmental stages, and (c) other factors affecting writing.

Models of the Writing Process

Bereiter and Scardamalia (1987) proposed a knowledge-transforming model of the role of working memory in the writing process that includes two components: knowledge-telling and knowledge-transforming. In the knowledge-telling component the writer retrieves content from long term memory, matches its appropriateness with the writing topic, and then generates a sentence or partial sentence. This procedure is

repeated until the writer has exhausted relevant ideas. Constraints on this process include not only the quantity and quality of content knowledge retrieved from long term memory, but also the availability of discourse knowledge, that is, linguistic knowledge applicable to any subject, and the mental representation of the writing assignment (Kellogg, 1996). Ultimately, however, the writing reflects the inner organization of the writer (Bruer, 1994).

Knowledge-transforming, on the other hand, is a high-order writing skill in which individuals organize their writings based on their rhetorical knowledge, knowledge of the audience, and the content of the piece (Bruer, 1994). In this model, writing is a problem solving process in which the writer explores options and makes decisions on what to say and how to say it. The expert writer tries to see her/his writing from the perspective of others; part of the task is "building bridges between what he or she knows and what others might know" (Bruer, 1994, p. 239). This intense reflective exercise transforms not only what the writer wants to say, but also how the writer chooses to say it. This shift from knowledge-telling to knowledge-transforming is a developmental progression. Bereiter and Scaramalia (1987) offer substantial evidence that children and other novice writers are not capable of knowledge-transforming.

Developmental stages. Bereiter (1980) identifies five structural elements that typically, but not necessarily, develop in a linear fashion: associative, performative, communicative, unified, and epistemic. Associative writing is the simplest system of producing coherent writing. It consists primarily of writing down whatever comes to mind, in the order in which it comes to mind; it is basically a reflection of the organization of the writer's internal thought. The second stage, performative, takes into account the formal conventions of writing: punctuation, spelling, grammar, and so forth. During this stage the writer is struggling to simultaneously handle associative content and stylistic conventions in short term memory. Until these conventions become automated, they generally disrupt the flow of a writer's thoughts. These two stages form the basis of the knowledge-telling stage of writing proposed by Bereiter and Scardamalia (1987). The third stage, communicative writing, takes into account the audience and is therefore dependent on the development of the ability to perceive viewpoints other than one's own. However, many children in middle school and beyond who are capable of comprehending others' viewpoint have difficulty in writing for an audience. It may be that the cognitive demands of the first two stages preempt the integration of social cognition into the writing process. The fourth stage, unified writing, takes into account both the social aspects of writing and the perspective of the writer as a reader of their own product. As children learn to respond critically to what they read, this ability can be used to respond critically to their own writing. The ability to do so establishes an internal feedback loop which changes the concept of writing from a mere skill to the craft of manipulating language to communicate both to oneself and others. The fifth stage, epistemic writing, is achieved when unified writing combines with reflective thought to create personal meaning. At this stage, writing is no longer a product of thought, rather, writing is an integral function of thought (Bereiter, 1980). These three stages are the components of the knowledge-transforming stage of writing proposed by Bereiter and Scardamalia (1987).

Another way of looking at development in writing is by examining development of sensitivity to style. Just as children are insensitive to style in pictures, they are also insensitive to style in writing. A series of studies in style sensitivities across art forms reveals that sensitivity to style appears first in music, then in art, and last in literature (Gardner, 1970; Gardner & Lohman, 1975; Gardner, Winner & Kircher, 1975). The distracting factor for children appears to be content. Music has the least amount of recognizable content so its style is recognized earliest; style in literature, which has the most content, is recognized last (Winner, 1982).

Age differences in writing. The ability to establish the setting of a story, depict characters, and develop plot increases with age. Characters are often described generically (a girl, a man) by young children (Sherman, 1989). The ability of children to depict the emotion and intention of their characters increases with age. The inclusion of internal states, motivations, and emotional reactions are rare in stories by children under the age of eight (Mandler, 1983). The characters of seven-year olds are generally "cut-out figures" with little depth or emotion (Tamburrini, 1983, p. 41). Characterizations produced by ten-year olds are more three-dimensional; their characters are described more fully (Sherman, 1989) and more conversational elements are embedded in the stories (Tamburrini, 1983). By age thirteen, children can ascribe emotions and intentions to multiple characters, not just ones similar to themselves. The ability to develop more complex characterization affects the ability to develop complex plots (Shapiro & Hudson, 1991).

Through exposure to stories, children acquire a schema for plot development which guides their production of narratives.[1] As early as age two, children can distinguish the beginning and end of stories by their opening and closing phrases (Applebee, 1978) and will use standard phrases to begin and end their own stories (Sherman, 1989). However, children often omit detail, focus on overt actions rather than internal responses, and fail to relate story events in a logical sequence (Applebee, 1978; Kroll & Anson, 1983). The ability to produce well-rounded narratives increases with age. Seven year-olds, in response to a picture prompt, produced mainly descriptive responses; plot structures which did exist were action based (Tamburrini, 1983). Stories by second graders are fragmentary, incomplete, and do not include motives, goals, or feelings of the characters in the plot structures (Miller & Yussen, 1982). The writing of ten year-olds included more narrative elements, but remained primarily descriptive, whereas the thirteen-year olds produced stronger plots and more interaction between characters (Tamburrini, 1983). Miller and Yussen (1982) found that seventh graders performed as well as adults on an oral storytelling task. Stewig (1995) found that in comparing the oral and written responses of second and fourth graders, the oral interpretations of pictures were much richer and more complex than the written responses. He theorized that the writing process might interfere with language production. A study of fourth and sixth

[1] Some studies reported ages and others reported grade levels; an attempt has been made to cluster the reviews according to ages that correspond to the grade levels.

graders by Golub and Frederick (1971) revealed similar findings; there were minimal differences across grade levels in oral passages, but significant differences in written passages generated by the participants.

Gender differences in writing. Studies in gender differences in writing at the elementary school level are noticeably absent from the literature (Gromley, Hammer, & McDerrmott, 1993). In studies on reading preferences, boys prefer to read stories in which the protagonist is a boy while girls prefer to read stories in which the protagonist is a girl (Beyard-Tyler & Sullivan, 1980; Johnson, 1984). In a story-retelling task, boys were more productive than the girls were because the main character in the story was perceived to have been a boy (Olson & Davies, 1989). In a study of oral language production, Tannen (as cited by Gromley et al., 1993) found that girls use the narrative form more frequently than boys. Girls are also more likely to encode personal experiences and to take into account other people's opinions and feelings when writing in reader response journals (Gromley et al., 1993). Cleary (1996) found that girls were more inclined than boys to write to please their teachers.

In a study which used a picture of an empty boat in the woods as a writing prompt for fifteen-year olds, there were marked gender differences in the themes produced. Generally, boys tended to produce action/adventure stories often in foreign settings while girls tended to produce family/domestic oriented stories in local settings (Davies, 1983). These thematic differences surface very early. In a study of preferences in writing topics, first grade children were asked to imagine they are animals and to write about their selections. Boys generally chose animals which are strong, wild, or dangerous, while girls tended to pick animals that are weak, tame, or safe (Ollila, 1989). Furthermore, both boys and girls produced stories in which attributes assigned to characters displayed sex-role stereotyping (Davies, 1983; Romantowski & Trepanier-Street, 1987).

A study of language usage of middle school students revealed no differences in syntactic maturity but boys produced more oral language while girls produced more written language. Boys were also more likely to use non-standard language (Price & Graves, 1980). In a study of fourth and sixth graders, fourth grade boys were substantially poorer writers than the other three groups. They evidenced more sentence fragments, fewer words per clause, and fewer adjectives. Sixth grade boys were also poorer writers than sixth grade girls (Golub & Fredrick, 1971).

Other Factors Affecting Writing

A review of the literature suggests that there are other variables which affect both type of discourse and the quantity of writing produced: levels of processing, “high road/low road” transfer, stance, teaching style, student/teacher interaction, writing strategy, prior knowledge, and instructions.

Levels of processing. Pictures can be processed in a variety of ways leading to both qualitatively and quantitatively different verbal responses. Pettersson (1988) theorizes that there are two image interpretation modes, one that is whole, immediate,

identifies concrete contents, and generates few words, and another which is detailed, requires more time, identifies abstract contents, and generates a larger quantity of words. The results of two studies by Pettersson (1988) using the same picture sets but different lengths of tasks, support his theory that pictures are perceived and interpreted on different cognitive levels depending on the task and the time allowed.

High road/low road transfer. Transfer also has an effect on the quality of verbal responses to pictures. Perkins and Salomon (1987) describe transfer as the ability to generalize learning from one area and apply it to another area. For example, the ability to drive a car is easily translatable into the ability to drive a truck. Transfer consists of two distinct types: "low road transfers" and "high road transfers." Low road transfer occurs automatically as a result of varied practice, as in the above example. High road transfer is dependent upon the deliberate generalizability of a principles learned in one area so that they can be transferred and applied in another area. For example, bluffing tactics learned playing poker can be applied in business negotiations (Perkins & Salomon, 1987). In a study designed to validate an instrument for assessing responses to pictures, the concepts of low road/high road transfer were applied. In constructing meaning from pictures, low road transfers of information resulted in descriptive verbal responses while high road transfers resulted in greater depth of understanding, more inferences, and interpretive verbal responses (Stavropoulous, 1997).

Stance. The reader response theory developed by Rosenblatt (1982), states that readers have two types of responses to text, "efferent" and "aesthetic." Readers will adopt either an efferent or aesthetic stance depending upon the type of information they are seeking. When readers seek factual or literal information, such as from a textbook, a manual, or a newspaper, they adopt an efferent stance. When readers seek enjoyment or wish to create meaning beyond factual reality, they adopt an aesthetic stance (Rosenblatt, 1982). In a study of verbal responses to photographs, it was shown that these stances could be applied to the reading of pictures as well. Verbal responses to pictures from an efferent stance are primarily descriptive in nature while verbal responses from an aesthetic stance will trigger narratives and story telling (Russell, 1993).

Teaching style/interaction/writing strategy. In a study of tenth graders, Mosenthal, Conley, Colella, and Davidson (1985) found that students whose teachers had a "cognitive development" teaching style (characterized by group work, desks clustered, student generated rules, etc.) were more likely to produce both descriptive and narrative writing while the students whose teachers had an "academic" teaching style (characterized by the teacher as authority, lecture style of teaching, desks in rows, rule oriented, etc.) tended to produce more descriptive writing. Mosenthal and Na (1981) found that different styles of student/teacher interaction could be used to predict writing style. A study of fourth graders revealed that students who use an "imitative" response pattern (e.g. Statement; "It's cold outside." Response; "Yes it's cold outside.") with their teachers tended to produce descriptive writing while students with a "non-contingent" response pattern (e.g. Statement; "It's cold outside". Response; "I want to play in the gym.") tended to produce narrative writing. The reason for this is because students with imitative response patterns typically employed a "bottom-up" writing strategy, relying on

external stimulus (the task, teacher expectations) to shape their compositions. Students with non-contingent response patterns typically employed a "top-down" (internally driven) approach.

Prior knowledge. Prior knowledge is often mentioned in the literature as a factor in the interpretation of pictures, as a justification of using pictures as writing prompts, and as a primary factor in generating writing. There are virtually no studies, however, that directly control for this variable. Studies involving the effect of prior knowledge on writing found that both the quantity of information produced and the quality of the discourse structure was markedly better in high knowledge participants than in low knowledge participants (Baker & Quellmalz, 1979b; Mosenthal et al., 1985).

Instructions. Studies on the role of instructions in influencing the content and structure of writing have shown mixed results. Bates (1991) in a study of children found that instructions played a role in writing content. When asked to write *about* a picture, descriptive passages were generated; only when specifically asked to explain *why* the actions were taking place did children move to a narrative structure. Robinson (1989) found that giving the instruction "All the things in this box are sad because they have no story to belong to" caused children's writing to become significantly more developed. On the other hand, a study of fourth and sixth graders found varying the instructions had no effect on writing style (Golub & Frederick, 1970).

The Use of Pictures to Prompt Writing

Pictures can be used to provide concrete stimuli for the formation of imagery, a key strategy in the production of writing (Sinatra, 1981). Furthermore, series of pictures can be used to teach students the underlying structures of different type of discourse (Sinatra, 1986). A small number of studies have been conducted using pictures or series of pictures to generate both oral and written responses. Oral responses are included in this section because these studies dealt with pre-school and primary school age students who lack the writing skills to generate passages of text.

Studies in the use of pictures to prompt writing. A year-long study involving first graders from urban and suburban settings was conducted to examine if exposure to art through a visual literacy program would produce a change in verbal responses over time. While children generated impressive amounts of words in both the pre-test and post-test responses, for unknown reasons the number of words generated on the post-test were fewer. On both the pre-test and post-test, identification of objects and relationships between objects were the primary components in the verbal responses (Stewig, 1994). In a study of what types of stimuli encourage storytelling, kindergarten through third grade students were given story elicitation tasks using a single picture, a wordless picture book, or prompted to write a story of their own. The single picture and the picture book elicited extensive vocabulary in the form of descriptions and action words, but only ill-defined story structures or connected discourse. The verbal prompt to "tell me a story" was the only task in which developed story structures were apparent. Hough, Nuss, and Wood (1987) conclude that pictures may hamper the story-telling process by limiting

imagination and by tying language to the picture rather than allowing for elaboration. These results were confirmed in studies of sixth graders (Ramirez Orellana, 1996) and six to eight-year olds (Bates, 1991) which yielded similar results. Ramirez speculates that picture content may play a major role in the generation of stories. These studies were contradicted by Baker and Quellmalz (1979a), who found that writing produced by eighth graders using pictorial stimuli had higher scores in the area of "organization" and "support" and no difference in the area of "general impression." Additionally, a study of written responses by fifth through seventh graders indicates that pictorial stimulus is a strong motivating factor in the generation of writing (Brennan, 1990).

Characteristics of pictures which are effective writing prompts. The literature on what constitutes a good picture for eliciting quality writing samples indicates that picture content is the primary characteristic that should drive the selection of pictures. On a very basic level, objects within pictures need to be identifiable and age appropriate (Cycowicz, Friedman, Snodgrass & Rothstein, 1994). Subject matter that is familiar and personal, for example, baking a cake, triggers scripts that children can use to generate writing (Bates, 1991; Cleaver, Scheurer & Shorey, 1993). However, pictures with recognizable figures, (e.g. Father Christmas) produced more descriptive writing than pictures with more generic figures or animals. It is possible that writing about a known figure places a burden of being correct on children which in turn stifles their creativity (Bates, 1991). In terms of style, Golub and Fredrick (1970, 1971) found that concrete pictures generated a larger quantity and better writing than abstract pictures. Complexity should also be considered in picture selection; high levels of complexity in terms of interactions between objects within the picture produce more and better writing (Samson & Wescott, 1983), however, visual complexity can hinder object identification particularly in young children (Cycowicz, et al., 1994). Petterson (1986) stresses finding a balance in level of complexity; too little complexity results in too little information transfer, too much complexity results in information overload and too little information transfer. The type of prompt used should relate to the type of writing one wishes to generate; single pictures will generate more descriptive passages, sequences of picture will generate more narratives (White, 1978).

Based on a review of the literature, Hooper and colleagues (1994) generated guidelines for single pictures used to generate narrative writing. They recommended using photographs rather than line drawings and that the photographs contain the following elements:

1. At least two characters, with perhaps one potential protagonist and one potential antagonist, although this is not absolutely necessary, depending on the situation depicted.

2. A depiction of some kind of "interesting" or "novel" scene or event (e.g., children lost in a cave).

3. Some kind of potential conflict between the antagonist and protagonist that necessitates that the protagonist engage in a goal-based sequence of events to

resolve the conflict, or a scene in which a main character must resolve a problem using a goal directed sequence of events (p. 388).

The contention by Hooper and colleagues (1994) that the subject matter of pictorial prompts effects the quality of writing was tested in a study by Cole and colleagues (1997) that examined the writing of 13 to 46 year olds. The study compared writing samples elicited using a prompt created according to the guidelines proposed by Hooper and colleagues to written samples elicited using a line drawing stimulus from the Peabody Individual Achievement Test -- Revised Written Expression (1989). Findings indicate that the "Hooper" picture generated written passages that were better in terms of compositional structure, but not mechanics (Cole et al., 1994).

Summary and Implications for this Study

Writing can be viewed in a variety of ways, but there is a consensus that writing is an interactive process by which individuals create meaning and communicate that meaning to others (Bruer, 1994; Flower & Hays, 1980; Kellogg, 1994). Children's ability to write develops slowly over time, progressing through multiple, overlapping stages in which knowledge-telling gradually matures into knowledge-transforming. Just as children are insensitive to style in pictures, they are also insensitive to type of writing. This insensitivity is the result of a focus on content to the exclusion of other aspects of both writing and pictures. This focus on content also manifests itself in the gradual developmental progression from writing descriptive passages to writing more narrative passages as writers mature. Type and depth of processing in the perception of pictures can have an effect on both the quantity and quality of writing produced. Pictures that are processed at more length produce more words and a greater variety of interpretations. Both an efferent stance towards viewing pictures and low road transfer will produce more descriptive passages of writing while an aesthetic stance and high road transfer will produce more narrative passages. Pictures can also trigger strings of associations in memory producing multiple interpretations from the same image. Studies in the use of pictures to prompt writing have generated contradictory findings, but a theme running through many of them is that the content of the picture is a major factor in the writing produced.

Chapter III

METHODOLOGY

In this study, differences in written responses to content, style, and color of pictorial writing prompts were examined. The methodology is organized according to the following topics: (a) research design, (b) sample, (c) instruments, (d) procedures, (e) analysis of writing samples, (f) and data analysis.

Research Design

Stories were written by fifth and eighth grade students using two sets of four pictures that controlled for content, but were varied in style and color: (a) color photograph, (b) black and white photograph, (c) color drawing, (d) black and white line drawing. Participants were assigned to one of the four style/color groups and asked to write twice in response to two pictures with different content (a) a cliff rescue and (b) a delivery man with a box. The pictures were counter-balanced within each group to control for confounding due to occasion. Each writing sample was analyzed by two raters using criteria provided by a writing rubric that contained three sub-scales; (a) narrative, (b) descriptive, and (c) events. The overall design of the study is shown in Table 1.

Table 1

The four factor repeated measures design with grade level, style, and color serving as Between subject factors and content serving as a within-subject factor.

	Content							
	Box				Cliff			
	Style				Style			
	Photograph		Drawing		Photograph		Drawing	
	Color		Color		Color		Color	
	Color	B&W	Color	B&W	Color	B&W	Color	B&W
Fifth Grade	G1	G2	G3	G4	G1	G2	G3	G4
Eighth Grade	G5	G6	G7	G8	G5	G6	G7	G8

Sample

Population

Fifth and eighth grade students participated in this study. The selection of eighth graders was based on a review of the literature that suggests that by the age of fourteen children's responses to style mirrors that of adults. Fifth graders were selected because their writing is developed enough to produce samples that can be evaluated by the rubric, but they do not respond to style like adults (Gardner, 1970). Children participating in the study were from a single public school system in the state of Virginia. The eighth graders

attend one middle school and the fifth graders attend the four elementary schools that are feeder schools for the middle school.

The geographic area is comprised of a predominately white population (3 percent African American) in rural, farming communities or small towns with some industry. The county seat is home to two universities that are major employers in the locality, and therefore the area has a large professional community. This variation in background suggests that the participants are drawn from a diversified socioeconomic community.

Sample Size

It was estimated that 240 students would be needed for this study. Cole and colleagues (1997) found a large effect size of approximately one standard deviation difference in the mean scores of the PIAT-R "box" picture and the "cliff" picture that was designed according to the Hooper criteria. The literature shows that children place the strongest emphasis on content, therefore, the mean differences between styles are likely to have a smaller effect. Based on the criteria proposed by Cohen (1988), a medium effect size of .50 was used in this study. Using a power table, for a two-tailed test at the .05 level of significance with .80 power, approximately 30 participants per cell were needed (Kraemer & Thiemann, 1988, p. 110), which translated into 240 participants for the eight treatment conditions. Due to potential subject attrition, approximately 300 participants were sought. A total of 233 usable sets of writing samples were obtained; 100 from fifth graders and 133 from eighth graders. See Table 2 for number of participants per cell.

Table 2
Number of Participants per Cell

	Color Photograph	B & W Photograph	Color Drawing	B & W Drawing
Grade 5	24	24	28	24
Grade 8	34	33	32	34

Instruments

Pictures

Based on research in children's writing development and reading preferences, it is evident that children write best about what they can relate to and what they know. So in addition to the guidelines suggested by Hooper, and colleagues (1994) listed in the previous section, the pictures contained children of both sexes that were similar in age to the children in the study and used familiar settings. The content of the pictures was controlled by creating stylistically different pictures based on the same photographs.

Two photographs were used in this study. The first photograph was modeled after the prompt used in the study by Cole and colleagues (1997) which depicts one man helping another on a rocky cliff by a beach while two additional figures observe from below. The photograph for this study depicted a young boy being helped up the rocky cliff face by two adolescent girls and included a storm in the background to inject an additional element of danger and urgency (see Appendix A). The second photograph was modeled after a writing prompt used by the PIAT-R (1989) which depicts a delivery man with a box; the door to the house is open with a dog and a cat near the threshold and two children can be seen in the distance. The photograph for this study contained one adolescent girl in the foreground receiving the package from a deliveryman while her mother watched (see Appendix A). Both photographs were edited in Adobe PhotoShop to achieve desired effects.

Three additional prompts were created from the two color photographs; a black and white photograph, a color illustration and a black and white line drawing. An artist was instructed to hold content, color, and artistic technique/medium as constant as possible within the constraints set by style. The images were reproduced using a digital photographic reproduction process and 8" x 10" photocopies were generated for use as writing prompts (see Appendix A).

The illustrations were validated by an independent panel of three artists who judged the illustrations on the basis of the following criteria: (a) overall quality of each illustration, (b) how well the picture represents the designated art style (color photograph, black and white photograph, color illustration, black and white line drawing), and (c) control of the variables of content, color, and style (see Appendix B).

Instructions

A single piece of lined paper with the instructions, "Write a story about this picture. You will have 20 minutes to complete this assignment." was used to collect the writing samples. The response sheets were pre-printed with an ID code, and information on occasion, color, and style of picture prompts. Each response sheet had two questions at the top regarding grade level and sex (see Appendix C).

Distractor Exercise

In order to give students a break between writing assignments, a distractor exercise consisting of a word find puzzle was used. The students who participated in the study prior to Halloween were given the "Autumn Colors" word-find puzzle. The one class that participated in the study after Thanksgiving were given the "Winter Wonderland" word-find puzzle (see Appendix D).

Procedures

The writing samples were collected by a public school system during the regular school day through English classes at the middle school and through regular classroom teachers at the elementary school level. This task was an integral part of the regular class activity and all students in regular English classes participated. The exercise was used to give students writing practice and to provide feedback to teachers and students as to the students' standing in relation to other students within classrooms. It must be noted, however, that students did not receive instruction in the use of pictures to generate writing prior to this activity.

Regularly scheduled classes met for 45 minutes at the middle school. Therefore the writing samples were collected on two consecutive days with each participant writing one story each day, and the distracter exercise was not used. At the elementary schools, the fifth grade teachers had the flexibility to do both writing assignments on the same day. Therefore, the students wrote the first story, took a 10-minute break while they did the distractor exercise, and then wrote the second story.

Four sets of 75 envelopes were assembled, one set for each of the treatment combinations: color photographs, black and white photographs, color drawings, and black and white drawings. Each envelope contained three interior envelopes and a mechanical pencil. The outside envelope contained the participant’s name and ID number. Two of the interior envelopes were labeled "Writing Assignment 1" and "Writing Assignment 2" and contained a picture and a response sheet. The third interior envelope contained a preferences survey that students were asked to complete (see Appendix E) but data from this survey is not reported as part of this study. Within each class, students were randomly assigned to one of the four treatment groups.

Participants were asked not to open the envelopes until instructed to do so. Procedures were explained to the participants following the scripts in Appendix F. Participants were given 20 minutes to write from each picture prompt. Participants were told when to begin writing and were given a 5-minute warning at the end of 15 minutes. At the end of 20 minutes the participants were instructed to stop writing. After completing the first writing sample, participants were asked to place the picture and the writing sample back in the first envelope. Participants were given a 5 minute break and asked to do a distractor exercise. After five minutes the participants were instructed to open the second envelope. Participants were again told when to begin writing and were given a 5-minute warning after 15 minutes. At the end of 20 minutes they were instructed to stop writing. Participants were asked to place the second picture and writing sample back in its envelope. The interior envelopes containing the writing samples were collected and given to the researcher; the exterior envelopes with the students' names were kept by the classroom teacher. Observations made by the researcher during data collection are found in Appendix G.

Prior to distribution to the raters, the writing samples were typed to control for handwriting bias. Spelling was corrected but punctuation and grammar were not

corrected. At the top of each typed writing sample was a scoring chart with the ID code of the participant (see Appendix H). Raters were given 60 to 90 writing samples each week over an 8-week time period.

Analysis of Writing Samples

Scoring Rubric

A review of the literature revealed that existing rubrics used in other studies were not sufficiently robust to measure the variables of interest in this study. Therefore, a rubric was developed and pilot tested prior to undertaking this study; a summary of the scale development report can be found in Appendix I. The revised rubric used in this study contains 10 items that were rated on a 5-point scale. These 10 items are divided into 3 sub-scales or components: (a) narrative component, (theme, plot, setting, and characterization items), (b) descriptive component (diction, sensory language, figurative language, and integration items), and (c) event component (before and after items). See Appendix J for the revised rubric.

Validity. Content validity of the rubric was determined by a focus group and a panel of writing experts; two faculty members at Virginia Tech and a doctoral student in educational research with six years experience teaching English in the K-12 setting. Construct validity was examined during a pilot study (N=60) by conducting a factor analysis on the items in the narrative and descriptive sub-scales. While the factor analysis revealed that several of the items loaded on both factors, all items loaded on the factors theorized by the literature, focus group, and expert panel (see Appendix I). This study assumes that treatments associated with higher scores are preferred over treatments yielding lower scores. However, it is unknown which scores are more valid in terms of criterion related validity.

Reliability. Generalizability theory was used to establish the level of inter-rater agreement and the reliability of the scoring rubric. This method of analysis has advantages over classical measurement theory, particularly in cases of performance-based assessment with multiple raters. Unlike classical measurement theory which does not differentiate between sources of error, generalizability theory permits identification of potential sources of error and determination of which of these sources are contributing to the reliability (or lack of reliability) of a scale.

Reliability of the instrument was determined by conducting generalizability study of the pilot test data. All writing samples were scored by two raters and the data were analyzed using GENOVA (Crick & Brennan, 1983), a program designed to run generalizability and decision studies (see Appendix I).

Rater Training and Inter-Rater Agreement

Two raters were asked to participate in this study; both are doctoral students in instructional technology at Virginia Tech with backgrounds in teaching writing. One rater taught at both the high school and the college level, the other rater taught exclusively at

the college level. The raters were paid to score the writing samples. Both raters participated in the pre-pilot test, the pilot test, and scored the writing samples in the main study. The raters met for approximately five hours of training and discussion of the rubric in order to obtain strong inter-rater agreement in the pilot test. Prior to scoring the writing samples in the main study, the raters met for another training session to reacquaint themselves with the rubric and to discuss and familiarize themselves with the two additional scale components.

Writing samples were given to the raters every Friday over an 8-week time period. Raters scored the samples and returned them by the following Wednesday. A generalizability study was conducted for each set of writing samples prior to the release of the next set to ensure that inter-rater agreement remained optimal. An additional 1-hour training session took place after the second set of writing samples was scored because the variance due to raters increased from zero percent (for the first set) to two percent (for the second set).

Data Analysis

Data obtained from the writing samples was analyzed using four methods; (a) frequencies and descriptive statistics, (b) an exploratory factor analysis, (c) a generalizability and decision study, and (d) analysis of variance.

Frequencies and Descriptive Statistics

Frequencies and descriptive statistics were run to examine the data for errors in data entry, and to identify items that had variances or means substantially different from the other items.

Factor Analysis

An exploratory factor analysis was conducted to confirm the construct validity of the revised scoring rubric, which contains 10 items. Principal components analysis with varimax rotation was used. It was anticipated that the new scale would result in the extraction of three factors (a) narrative, (b) descriptive, and (c) events.

Generalizability Study

Data obtained from the writing samples were also used in a G study to confirm inter-rater agreement and to establish the reliability of the scale. The scores from the two raters were analyzed using GENOVA (Crick & Brennan, 1983) to establish inter-rater agreement and the reliability of scores obtained for the 10 item scale. Based on the pilot study which revealed a 7% error variance associated with raters at the elementary school level, three G studies, one for each grade level, and a combined G study were conducted. The following potential sources of measurement error, or facets, were identified for each study: participants x raters x pictures x components. This analysis assessed the variance associated with these facets, particularly the following major sources of error (a) variance

between raters (inter-rater reliability) and (b) variance between components (scale reliability).

Analysis of Variance

The data was analyzed using a four-factor repeated measures ANOVA consistent with the experimental design displayed in Table 1. Writing samples of the two grade levels (fifth and eighth grade) were compared with regard to picture style (photograph and drawings), color (color and black & white), and content (box and cliff). The 10 item scores (ratings) were averaged across the two raters. Scores for the narrative, descriptive, and event components were next computed as the sum of the item scores used to define each component. A total score was also computed as the sum of all the item scores. Four 2 x 2 x 2 x 2 ANOVAs were run, one for each set of scores. The between-subjects factors were grade level, style, and color; content was the within-subjects factor. An alpha level of .05 was adopted. After the primary analysis, a secondary analysis was conducted on individual items of the events component.

Chapter IV

RESULTS

The purpose of this study was to determine the effect of the content, style, and color of pictures used for writing prompts on the quality of narrative and descriptive writing. A factorial design was used wherein fifth and eighth grade students were randomly assigned to pictorial writing prompts that differed systematically by (a) content, (b) style, and (c) color. A 2 x 2 x 2 x 2 repeated measures factorial analysis of variance (ANOVA) was used test the significance of mean differences. As described in Chapter 3, the raters' scores were averaged and four scores were obtained for each writing sample, three components and a total score. The three components were narrative, descriptive, and events. Prior to using ANOVA, psychometric characteristics of the ratings were analyzed in several ways: (a) frequencies and descriptive statistics were run on the individual items, (b) a factor analysis was conducted verify the construct validity of the narrative and descriptive sub-scales, and (c) a generalizability study was conducted to determine inter-rater agreement and reliability of the scale.

Analysis of the Data

Frequencies and Descriptive Statistics

Table 3 shows means and standard deviations of the scores averaged across raters for the ten items comprising the scale. Each item has five levels of quality, with associated numeric values from 0-4. An examination of the means and standard deviations revealed that the ratings for item 1 (theme) had very low means, (.45 for the box picture and .52 for the cliff picture). Item 6 (figurative language) also had low means (.03 for the box picture and .12 for the cliff picture); accordingly these items had very small variances, (.14 for the box picture and .36 for the cliff picture). This data is indicative of the fact that the raters assigned a zero to nearly all of the stories for these items. An additional note of interest is that the two items that comprise the event component, items 9 and 10, have means that are essentially reversed. For the cliff picture, item 9 had a higher mean (M = 1.90) than did item 10 (M = 1.55). For the box picture, item 10 had a higher mean (M = 1.92) than did item 9 (M = 1.43). For this reason a decision was made to run two additional ANOVAs, one for each of these two items.

Table 3
Means and Standard Deviations for Components of Writing Rubric

		Box Picture		Cliff Picture	
	N	Mean	SD	Mean	SD
Narrative Component					
Item 1 - Theme	233	.45	.69	.52	.74
Item 2 - Plot	233	2.66	.72	2.72	.69
Item 3 - Setting	233	1.38	.72	2.82	.48
Item 4 - Characterization	233	2.06	.57	2.10	.54
Descriptive Component					
Item 5 - Diction	233	1.58	.62	1.74	.63
Item 6 - Figurative Language	233	.03	.14	.12	.36
Item 7 - Sensory Language	233	1.11	.84	1.45	.85
Item 8 - Integration	233	.97	.90	1.42	.93
Events Component					
Item 9 - Prior Events	233	1.43	1.17	1.90	1.09
Item 10 - After Events	233	1.92	1.01	1.55	.91

Factor Analysis

The correlations among the 10 items were subjected to a principal components analysis followed by a varimax rotation. In the initial analysis three components were extracted so as to be consistent with the three components hypothesized in designing the rubric: (a) narrative component, (b) descriptive component, and (c) events component. These three components explained 55 percent of the total variance, but the resulting factor pattern was not consistent with expectations. All items had large loadings on factor 1 and items 2 (Plot) and 9 (Prior Events) and 10 (After Events) were the only items with high loadings on factor 2. In retrospect this does make sense, even if not anticipated. Development of plot is dependent upon a sequence of events; the more events generated the greater likelihood of a stronger plot. Items 1 (Theme) and 6 (Figurative Language) loaded on factor 3, probably because of their low means and variances. Consequently, a decision was made to eliminate items 1 and 6, as well as items 9 and 10, which were not a part of the original scale. A re-analysis was undertaken, this time forcing only two factors. These two components explained 63 percent of the total variance and, generally, the items loaded on the factors theorized in developing the scale. The only notable exception was item 3 for the box picture. The resulting factor pattern matrix is reported in Table 5.

Table 4
Factor Analysis of Scores Averaged Across Raters

	Box Scores		Cliff Scores	
	Factor 1	Factor 2	Factor 1	Factor 2
Narrative Component				
Item 2 - Plot		.784		.870
Item 3 - Setting	.438			.690
Item 4 - Characterization	.433	.553	.405	.636
Descriptive Component				
Item 5 - Diction	.839		.709	.318
Item 7 - Sensory Language	.886		.815	
Item 8 - Integration	.872		.789	

NOTE: loadings <.30 deleted.

Generalizability Study

A generalizability study was conducted to determine inter-rater agreement and the reliability of the scale. Four facets were identified as potentially contributing to variance in the scale: (a) students, (b) raters, (c) pictures, (d) items. Although the descriptive statistics and the factor analysis revealed problems with items 1 and 6, these items were retained in running the generalizability study. The generalizability coefficient for the scale with all items and participants included was .75. Two additional generalizability studies were conducted, one each for fifth and eighth grade writing samples. The generalizability coefficients were .72 for the fifth grade ratings and .77 for the eighth grade ratings, indicating that the scale is more reliable for the eighth grade writing samples. All three generalizability studies revealed that inter-rater agreement was excellent and contributed little to the error variance of the instrument.

Table 5 shows the results of the generalizability study for all participants. The variance component for raters is zero, indicating that inter-rater agreement was excellent. The variance components for student x rater, rater x picture, and rater x item interactions also contribute zero percent to the variance of the scale. Student x rater x picture and student x rater x item interactions contributed 3 percent to the variance of the scale. Because the variance components for the fifth and eighth grade samples were similar to the variance components for all participants, the generalizability studies for the separate grade levels are not reported.

Table 5
Generalizability Table for all participants - Students x Raters x Pictures x Items Design

Effect	*df*	Sums of Squares	Mean Square	Variance Component	Percent of Variance
Students	232	1866.71	8.05	.1514	11
Raters	1	1.84	1.84	(0.0)	0
Pictures	1	176.07	176.07	.0249	2
Items	9	5054.21	561.58	.5436	38
Students x Raters	232	148.03	.64	.0094	0
Students x Pictures	232	292.41	1.26	.0280	2
Students x Items	2088	2227.17	1.07	.1219	9
Raters x Pictures	1	8.11	8.11	.0027	0
Raters x Items	9	28.48	3.16	.0032	0
Pictures x Items	9	476.31	52.92	.1094	8
Students x Raters x Pictures	232	91.96	.40	.0175	1
Students x Raters x Items	2088	573.90	.27	.0269	2
Students x Pictures x Items	2088	1096.47	.52	.1520	11
Raters x Pictures x Items	9	14.64	1.63	.0060	0
Students x Raters x Pictures x Items (unexplained error)	2088	461.53	.22	.2210	16

A problem identified by the generalizability study was that the variance component associated with items is large, comprising 38 percent of the total variance. This is due in part to the low means and variances associated with items 1 and 6. A fourth generalizability study was undertaken in which all participants were included but ratings for items 1 and 6 were deleted. The generalizability coefficient for this analysis increased slightly to .77. Table 6 shows the results of the generalizability study with items 1 and 6 deleted. It is of interest that the variance component associated with items dropped from 38 percent of the variance (see Table 5) to 14 percent of the variance with items 1 and 6 deleted (see Table 6), an indication that items 1 and 6 are not reliable.

As in the previous study, the variance component for raters is 0, indicating that inter-rater agreement was excellent and contributed zero percent to the overall variance of the scale. The variance components for student x rater, rater x picture, and rater x item interactions also contribute zero percent to the variance of the scale. The variance components for student x rater x picture and student x rater x item interactions increased slightly, contributing a total of five percent to the variance of the scale.

The variance components associated solely with students, pictures, and the interactions between students, items, and pictures are not of interest for the generalizability study as they are indicative of student x picture interactions which will be discussed in the context of the mean differences and analysis of variance. However, it is interesting to note that the variance component associated with students increased from 11 percent to 18 percent of the total variance with items 1 and 6 deleted, while the

component associated with the picture x item interaction increased from 8 percent to 12 percent of the variance.

Table 6
Generalizability Table for all participants with Items 1 and 6 Deleted
Students x Raters x Pictures x Items Design

Effect	*df*	Sums of Squares	Mean Square	Variance Component	Percent of Variance
Students	232	1987.62	8.57	.207	18
Raters	1	.10	.10	(0.0)	0
Pictures	1	196.04	196.04	.032	3
Items	9	1526.68	218.10	.162	14
Students x Raters	232	139.93	.60	.006	0
Students x Pictures	232	299.86	1.29	.034	3
Students x Items	2088	1761.79	1.08	.119	10
Raters x Pictures	1	11.36	11.36	.005	0
Raters x Items	9	22.48	3.21	.003	0
Pictures x Items	9	453.48	64.78	.135	12
Students x Raters x Pictures	232	99.80	.43	.024	2
Students x Raters x Items	2088	486.73	.30	.032	3
Students x Pictures x Items	2088	887.87	.55	.155	13
Raters x Pictures x Items	9	9.81	1.40	.005	0
Students x Raters x Pictures x Items (unexplained error)	2088	383.28	.24	.236	20

Note: Does not equal 100 percent due to rounding

Analysis of Mean Differences

A total of six 2 x 2 x 2 x 2 repeated measures ANOVAs were used to test the significance of mean differences. While the descriptive statistics, factor analysis, and generalizability study all indicated problems with items 1 and 6, an ANOVA applied to the scores with items 1 and 6 deleted did not reveal any striking differences when compared to the ANOVA results for total scores. Therefore, as planned, ANOVAs were applied to: (a) total scores, (b) narrative component scores, (c) descriptive component scores, and (d) event component scores. In addition separate ANOVAs were applied to the two items making up the events component (items 9 and 10) due to the observed anomaly regarding the means for the two items across the box and cliff pictures.

Total Scores. Table 7 displays the means and standard deviations for total scores associated with the treatment combinations of content, style, color, and grade level. The summary ANOVA table for total scores is shown in Table 8. The results of the ANOVA for total scores indicate that the main effect for content is significant, F (1, 225) = 149.70, $p < .001$. The cliff picture (M = 16.33, SD = 4.88) elicited significantly higher total scores than the box picture (M = 13.58, SD = 4.88). The interaction between content and style was also significant, F (1, 225) = 17.07, $p < .001$. Figure 1 contains a graph of the interaction between content and style which shows that students wrote significantly better

on the box picture when writing from a drawing but wrote better on the cliff picture when writing from a photograph. While not of theoretical importance, the main effect for grade level is also significant, F (1, 225) = 351.70, p = .003. The eighth graders (M = 17.06, SD = 5.38) wrote better than the fifth graders (M = 15.37, SD = 3.57). The main effects for color and style are not significant.

Table 7

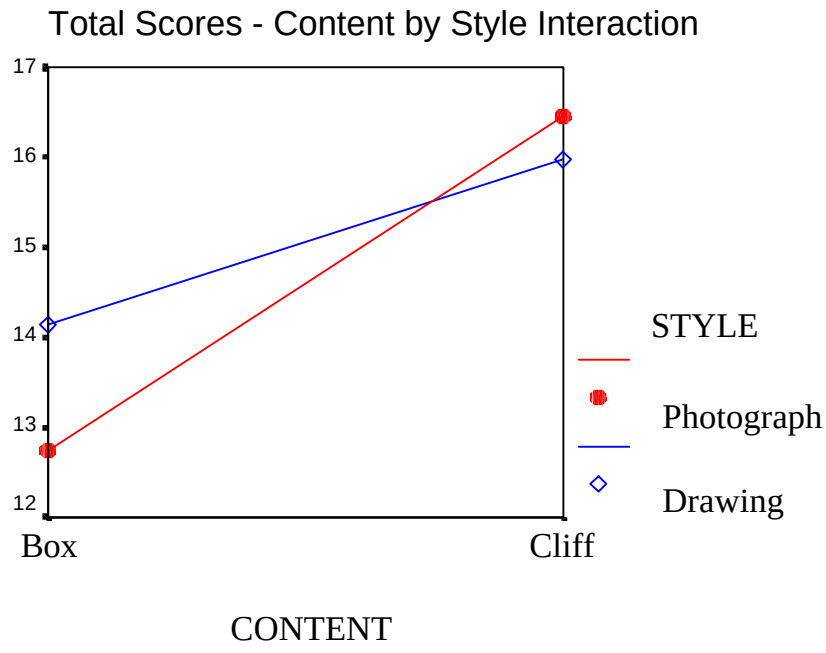
Means and Standard Deviations of Total Writing Scores Associated with the Treatment Combinations of Style, Color, Content, and Grade Level

	Content									
	Box					Cliff				
	Style					**Style**				
	Photograph		Drawing			Photograph		Drawing		
	Color		**Color**		Box	**Color**		**Color**		Cliff
	Color	B&W	Color	B&W	Total	Color	B&W	Color	B&W	Total
Grade 5										
Mean	11.58	12.02	13.75	12.75	**12.57**	16.17	15.44	15.23	14.67	**15.37**
SD	4.68	4.43	4.23	3.31	4.22	3.59	4.35	3.25	3.11	3.58
Grade 8										
Mean	13.88	13.51	15.56	14.47	**14.34**	18.10	16.15	17.97	16.03	**17.06**
SD	4.51	5.59	5.03	5.67	5.22	5.04	6.25	3.88	5.88	5.38
Total										
Mean					**13.58**					**16.33**
SD					4.68					4.51

Table 8
Summary ANOVA Table of Total Writing Scores

Source	*df*	SS	MS	F	P
Between Subject Effects					
Style	1	22.85	22.85	.582	.446
Color	1	92.01	92.01	2.34	.127
Grade	1	351.70	351.70	8.97	.003
Style x Color	1	7.12	7.12	.18	.670
Style x Grade	1	2.58	2.58	.07	.798
Color x Grade	1	21.51	21.51	.55	.460
Style x Color x Grade	1	.531	.531	.01	.907
Error	225	8829.90			
Within Subject Effects					
Content	1	879.46	879.46	149.70	.000
Content x Style	1	100.26	100.26	17.07	.000
Content x Color	1	17.97	17.97	3.06	.082
Content x Grade	1	.562	.562	.07	.757
Content x Style x Color	1	9.846	9.846	1.68	.197
Content x Style x Grade	1	5.11	5.11	.87	.347
Content x Color x Grade	1	5.23	5.23	.89	.352
Content x Style x Color x Grade	1	1.28	1.28	.30	.641
Error (Content)	225	1321.79	5.875		

Figure 1



Narrative Component: Theme, Plot, Setting, and Characterization. Table 9 displays the means and standard deviations for the narrative component associated with the treatment combinations of content, style, color, and grade level. The summary ANOVA table for the narrative component is shown in Table 10. The results of the ANOVA for the narrative component indicate that the main effect for content is significant, F (1, 225) = 255.89, $p < .001$. The cliff picture elicited significantly higher total scores (M = 8.15, SD = 1.72) than the box picture (M = 6.55, SD = 1.78). The interaction between content and style was also significant, F (1, 225) = 17.07, $p < .001$. Figure 2 contains a graph of the interaction between content and style which shows that students wrote better on the box picture when writing from a drawing but wrote better on the cliff picture when writing from a photograph. It is of interest that the main effect for grade level on the narrative component is not significant F (1, 225) = 1.246, p = .266. The main effects for color and style also were not significant.

Table 9

Means and Standard Deviations of Narrative Component Scores Associated with the Treatment Combinations of Style, Color, Content, and Grade Level

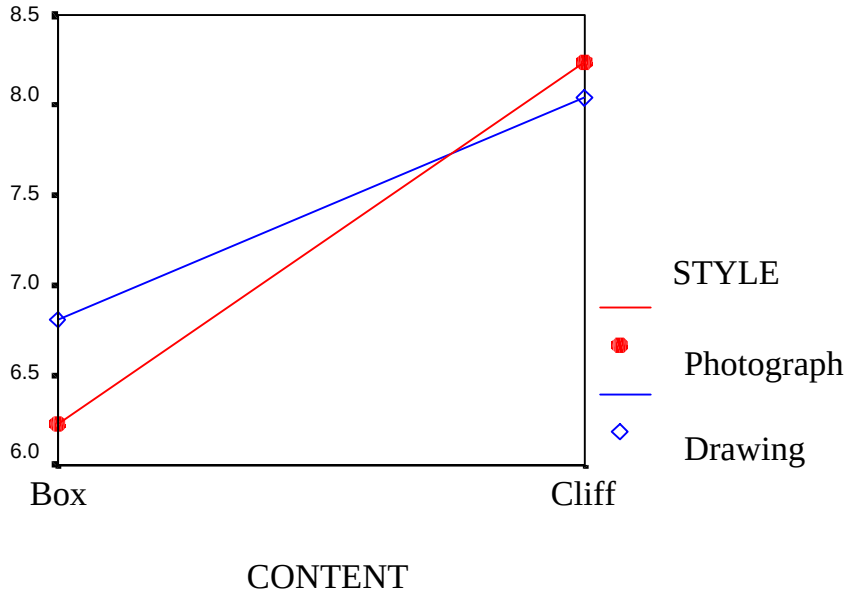
	Content									
	Box					Cliff				
	Style					**Style**				
	Photograph		Drawing			Photograph		Drawing		
	Color		**Color**		Box	**Color**		**Color**		Cliff
	Color	B&W	Color	B&W	Total	Color	B&W	Color	B&W	Total
Grade 5										
Mean	6.02	6.17	6.78	6.56	**6.40**	8.23	8.02	7.89	8.04	**8.04**
SD	1.65	1.73	1.70	1.28	1.61	.86	1.67	1.07	1.19	1.22
Grade 8										
Mean	6.30	6.44	7.28	6.62	**6.65**	8.69	8.01	8.55	7.67	**8.22**
SD	1.67	2.11	1.87	1.87	1.90	1.90	2.20	1.57	2.25	2.02
Total										
Mean					**6.55**					**8.15**
SD					1.78					1.72

Table 10
Summary ANOVA Table of Narrative Component Scores

Source	*df*	SS	MS	F	P
Between Subject Effects					
Style	1	4.07	4.07	.827	.364
Color	1	8.74	8.74	1.775	.184
Grade	1	6.13	6.13	1.246	.266
Style x Color	1	1.78	1.78	.362	.548
Style x Grade	1	.06	.06	.011	.915
Color x Grade	1	6.71	6.71	1.364	.244
Style x Color x Grade	1	1.70	1.70	.345	.558
Error	225	1107.52	4.92		
Within Subject Effects					
Content	1	297.449	297.449	255.892	.000
Content x Style	1	17.203	17.203	14.799	.000
Content x Color	1	1.763	1.763	1.517	.219
Content x Grade	1	.239	.239	.205	.651
Content x Style x Color	1	3.128	3.128	2.691	.102
Content x Style x Grade	1	.044	.044	.038	.846
Content x Color x Grade	1	1.892	1.892	1.627	.203
Content x Style x Color x Grade	1	.028	.028	.024	.876
Error (Content)	225	261.540	1.162		

Figure 2

Narrative Component - Content x Style Interaction



Descriptive Component: Diction, Sensory Language, Figurative Language, and Integration. Table 11 displays the means and standard deviations for the descriptive component associated with the treatment combinations of content, style, color, and grade level. The summary ANOVA table for the descriptive component is shown in Table 12. The results of the ANOVA for the descriptive component indicate that the main effect for content is significant F (1, 225) = 67.288, $p < .001$. The cliff picture elicited significantly higher total scores (M = 4.73, SD = 2.43) than the box picture (M = 3.68, SD = 2.24). The interaction between content and style was also significant, F (1, 225) = 9.714, p = .002. Figure 3 contains a graph of the interaction between content and style which shows that students wrote better on the box picture when writing from a drawing but wrote better on the cliff picture when writing from a photograph. The main effect for grade level is also significant, F (1, 225) = 129.95, $p < .001$, with eighth graders (M = 5.23, SD = 2.69) scoring significantly better than the fifth graders (M = 4.06, SD = 1.84). The main effects for color and style were not significant.

Table 11

Means and Standard Deviations of Descriptive Component Scores Associated with the Treatment Combinations of Style, Color, Content, and Grade Level

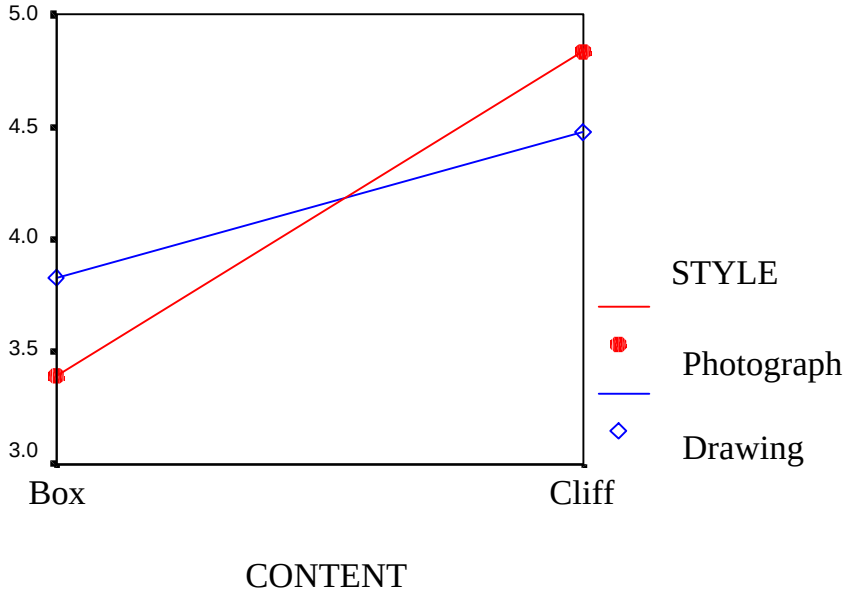
	Content									
	Box					Cliff				
	Style					**Style**				
	Photograph		Drawing			Photograph		Drawing		
	Color		**Color**		Box	**Color**		**Color**		Cliff
	Color	B&W	Color	B&W	Total	Color	B&W	Color	B&W	Total
Grade 5										
Mean	3.10	2.69	3.48	3.23	**3.14**	4.50	4.33	3.95	3.50	**4.06**
SD	2.31	1.63	1.97	1.58	1.89	2.07	1.95	1.59	1.73	1.85
Grade 8										
Mean	3.84	3.95	4.37	4.22	**4.09**	5.54	4.95	5.53	4.91	**5.23**
SD	2.17	2.37	2.61	2.50	2.39	2.94	2.94	2.25	2.63	2.70
Total										
Mean					**3.68**					**4.73**
SD					2.24					2.44

Table 12
Summary ANOVA Table of Descriptive Component Scores

Source	*df*	SS	MS	F	P
Between Subject Effects					
Style	1	.14	.14	.016	.899
Color	1	11.38	11.38	1.307	.254
Grade	1	129.95	129.95	14.917	.000
Style x Color	1	.31	.31	.035	.851
Style x Grade	1	2.62	2.62	.301	.584
Color x Grade	1	.00	.00	.000	.987
Style x Color x Grade	1	.06	.06	.007	.934
Error	225	1960.10	8.71		
Within Subject Effects					
Content	1	123.43	123.43	67.288	.000
Content x Style	1	17.82	17.82	9.714	.002
Content x Color	1	2.21	2.21	1.204	.274
Content x Grade	1	1.07	1.07	.585	.445
Content x Style x Color	1	.07	.07	.040	.842
Content x Style x Grade	1	3.73	3.73	2.033	.155
Content x Color x Grade	1	2.68	2.68	1.461	.228
Content x Style x Color x Grade	1	.83	.83	.454	.501
Error (Content)	225	412.73	1.83		

Figure 3

Descriptive Component - Content by Style Interaction



Event Component: Prior and After Events. Table 13 displays the means and standard deviations for the events component associated with the treatment combinations of content, style, color, and grade level. The summary ANOVA table for the event component is shown in Table 14. The results of the ANOVA for the event component indicate that only the main effect for grade level is significant F (1, 225) = 129.95, p < .001. Eighth graders (M = 3.59, SD = 1.63) wrote better than fifth graders (M = 3.26, SD = 1.57) on the events component.

The main effect for content was not significant F (1, 225) = 1.256, p = .264. However, the descriptive statistics revealed that the mean differences on content are reversed for these two items, thus explaining why the main effect was not significant when these items were combined. Therefore, a secondary analysis was undertaken in which the two items which comprise the events component were analyzed separately.

Table 13

Means and Standard Deviations of Event Component Scores Associated with the Treatment Combinations of Style, Color, Content, and Grade Level

	Content									
	Box					Cliff				
	Style					**Style**				
	Photograph		Drawing			Photograph		Drawing		
	Color		**Color**		Box	**Color**		**Color**		Cliff
	Color	B&W	Color	B&W	Total	Color	B&W	Color	B&W	Total
Grade 5										
Mean	2.46	3.17	3.48	2.96	**3.03**	3.44	3.08	3.39	3.12	**3.26**
SD	1.84	1.81	1.57	1.44	1.69	1.72	1.66	1.51	1.48	1.58
Grade 8										
Mean	3.72	3.12	3.90	3.63	**3.59**	3.87	3.18	3.89	3.44	**3.59**
SD	1.75	1.83	1.82	2.03	1.86	1.58	1.79	1.33	1.73	1.63
Total										
Mean					**3.35**					**3.45**
SD					1.81					1.61

Table 14
Summary ANOVA Table of Event Component Scores

Source	*df*	SS	MS	F	P
Between Subject Effects					
Style	1	5.710	5.710	1.290	.257
Color	1	10.643	10.643	2.405	.122
Grade	1	23.795	23.795	5.377	.021
Style x Color	1	.607	.607	.137	.712
Style x Grade	1	.049	.049	.011	.916
Color x Grade	1	4.390	4.390	.992	.320
Style x Color x Grade	1	5.187	5.187	1.172	.280
Error	225	995.668	4.425		
Within Subject Effects					
Content	1	1.688	1.688	1.256	.264
Content x Style	1	2.704	2.704	2.012	.157
Content x Color	1	2.031	2.031	1.511	.220
Content x Grade	1	1.682	1.682	1.251	.265
Content x Style x Color	1	2.688	2.688	2.000	.159
Content x Style x Grade	1	.290	.290	.216	.643
Content x Color x Grade	1	.527	.527	.392	.532
Content x Style x Color x Grade	1	3.524	3.524	2.622	.107
Error (Content)	225	302.413	1.344		

Prior Event Item. Table 15 displays the means and standard deviations for the prior events item, associated with the treatment combinations of content, style, color, and grade level and the summary ANOVA table is shown in Table 16. The results of the ANOVA for the prior events item indicates that the main effect for content is significant, $F(1, 225) = 34.546$, $p < .001$. The cliff picture ($M = 1.90$, $SD = 1.09$) generated significantly more prior events than the box picture ($M = 1.43$, $SD = 1.17$).

There is a significant 3-way interaction between content, style, and color. This interaction is represented by the two graphs shown in Figure 4. As shown on the left hand side of Figure 4 (Color), there is no difference for style on the cliff picture, but drawings elicited higher mean scores than photographs for the box picture. By contrast, as shown on the right hand side of Figure 4 (Black and White), there is no difference for style on the box picture, but drawings elicited higher mean scores than photographs for the cliff picture.

Table 15

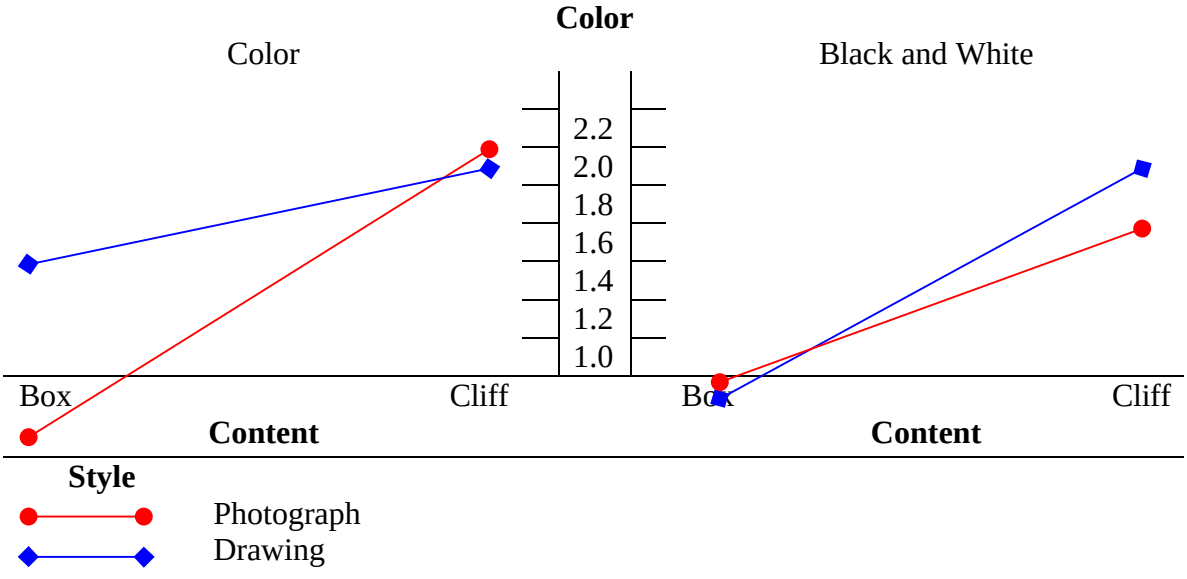
Means and Standard Deviations of Item 9 (Prior Events) Scores Associated with the Treatment Combinations of Style, Color, Content, and Grade Level

	Content									
	Box					Cliff				
	Style					**Style**				
	Photograph		Drawing			Photograph		Drawing		
	Color		**Color**		Box	**Color**		**Color**		Cliff
	Color	B&W	Color	B&W	Total	Color	B&W	Color	B&W	Total
Grade 5										
Mean	.77	1.33	1.50	.90	**1.14**	1.83	1.54	1.77	1.56	**1.68**
SD	.91	1.13	1.05	.79	1.02	.95	1.08	1.02	1.05	1.02
Grade 8										
Mean	1.68	1.27	1.89	1.75	**1.65**	2.16	1.83	2.09	2.19	**2.07**
SD	1.20	1.23	1.21	1.29	1.24	1.08	1.18	1.15	1.04	1.11
Total										
Mean					**1.43**					**1.90**
SD					1.17					1.09

Table 16
Summary ANOVA Table of Item 9 (Prior Events) Scores

Source	*df*	SS	MS	F	P
Between Subject Effects					
Style	1	2.684	2.684	1.616	.205
Color	1	3.072	3.072	1.850	.175
Grade	1	23.886	23.886	14.386	.000
Style x Color	1	.272	.272	.164	.686
Style x Grade	1	.959	.959	.578	.448
Color x Grade	1	.100	.100	.060	.807
Style x Color x Grade	1	5.569	5.569	3.354	.068
Error	225	373.589	1.660		
Within Subject Effects					
Content	1	26.994	26.994	34.546	.000
Content x Style	1	.969	.969	1.240	.267
Content x Color	1	.036	.036	.046	.831
Content x Grade	1	.472	.472	.604	.438
Content x Style x Color	1	3.565	3.565	4.563	.034
Content x Style x Grade	1	.008	.008	.010	.922
Content x Color x Grade	1	1.051	1.051	1.345	.247
Content x Style x Color x Grade	1	2.114	2.114	2.706	.101
Error (Content)	225	175.811	.781		

Figure 4
Prior Events: Content x Style x Color Interaction



After Events Item. Table 17 displays the means and standard deviations for the after events item associated with the treatment combinations of content, style, color, and grade level; the summary ANOVA table is shown in Table 18. The results of the ANOVA for the after events item indicates that the main effect for content is also significant, F (1, 225) = 31.89, p < .001. The box picture (M = 1.92, SD = 1.01) generated significantly more after events than the cliff picture (M = 1.55, SD = 91).

Also of note is that grade level was significant for prior events, F (1, 225) = 14.386, p < .001 but not for after events, F (1,225) < .001, p = 994. This indicates that eighth graders (M = 2.07, SD = 1.11) generate significantly more prior events than fifth graders (M = 1.68, SD = 1.02), but that fifth graders (M = 1.59, SD = .92) and eighth graders (M = 1.52, SD = .90) generate a comparable number of after events. It must be noted, however, that these findings are based on ANOVAs run on only one item, and were undertaken only as a secondary analysis.

Table 17

Means and Standard Deviations of Item 10 (After Events) Scores Associated with the Treatment Combinations of Style, Color, Content, and Grade Level

	Content									
	Box					Cliff				
	Style					**Style**				
	Photograph		Drawing			Photograph		Drawing		
	Color		**Color**		Box	**Color**		**Color**		Cliff
	Color	B&W	Color	B&W	Total	Color	B&W	Color	B&W	Total
Grade 5										
Mean	1.69	1.83	1.98	2.06	**1.90**	1.60	1.54	1.63	1.56	**1.59**
SD	1.14	1.03	.93	.86	.99	.93	.87	1.04	.84	.92
Grade 8										
Mean	2.04	1.85	2.02	1.88	**1.95**	1.71	1.35	1.80	1.25	**1.52**
SD	.92	1.20	.91	1.10	1.03	.88	.98	.76	.89	.90
Total										
Mean					**1.92**					**1.55**
SD					1.01					.91

Table 18
Summary ANOVA Table of Item 10 (After Events) Scores

Source	*df*	SS	MS	F	P
Between Subject Effects					
Style	1	.565	.565	.410	.523
Color	1	2.279	2.279	1.654	.200
Grade	1	.000	.000	.000	.994
Style x Color	1	.066	.066	.048	.827
Style x Grade	1	.573	.573	.416	.520
Color x Grade	1	3.167	3.167	2.299	.131
Style x Color x Grade	1	.007	.007	.005	.944
Error	225	310.006	1.378		
Within Subject Effects					
Content	1	15.182	15.182	31.894	.000
Content x Style	1	.436	.436	.916	.340
Content x Color	1	1.527	1.527	3.208	.075
Content x Grade	1	.372	.372	.781	.378
Content x Style x Color	1	.062	.062	.130	.719
Content x Style x Grade	1	.392	.392	.823	.365
Content x Color x Grade	1	.089	.089	.188	.665
Content x Style x Color x Grade	1	.179	.179	.376	.540
Error (Content)	225	107.102	.476		

Summary of Findings According to the Research Questions

Research Question # 1

What effect does the content of pictures used as prompts for narrative writing have on the writing produced?

It was hypothesized that stories written in response to the "cliff" pictures would receive higher ratings than stories written in response to the "box" pictures. This difference was expected to be most pronounced on the narrative and events ratings.

Finding: This hypothesis was supported by the analyses for total scores (see Table 7), the narrative component (see Table 9), the descriptive component (see Table 11), and prior events item (see Table 15). In each of these analyses stories generated using the more dynamic scene depicted in the “cliff rescue” pictures had higher scores than the stories generated from the more static “box” pictures. However, this hypothesis was not supported by the analyses for the event component (see Table 13) or the after event item (see Table 17). The main effect for content was not significant for the event component. However, contrary to expectations, the “box” picture generated significantly more after events than the “cliff rescue” picture.

Research Question # 2

What effect does the style of the picture (photographic, drawing) used as a prompt for narrative writing have on the writing produced?

It was hypothesized that there would be an interaction between grade level and style. Specifically, stories written in response to the drawings would elicit higher total scores than stories written in response to photographs at the fifth grade level, whereas stories written in response to the photographs would elicit the higher total scores than stories written in response to the drawings at the eighth grade level. This difference was expected to be most pronounced on the narrative and events ratings.

Finding: This hypothesis was not supported by the analyses, the main effect for style was not significant nor were there any significant style x grade level interactions. However, there was a content x style interaction which was significant for total scores, (see Table 7 and Figure 1), the narrative component (see Table 9 and Figure 2), and the descriptive component (see Table 11 and Figure 3). Stories generated from drawings of the box scene yielded higher scores than photographs of the box scenes while stories generated from photographs of the cliff rescue scene yielded higher scores than stories generated from drawings of the cliff rescue scene. This interaction was not significant on the event component or on the two items (prior and after events) which comprise this component. There was however, a significant content x style x color interaction, for the prior events rating (see Table 15 and Figure 4).

Research Question # 3

What effect does the color of the picture (black and white, color) used as a prompt for narrative writing have on the writing produced?

Two hypotheses were generated based on this question: First, it was hypothesized that stories written in response to color pictures would receive higher ratings than stories written in response to black and white pictures. This difference was expected to be most pronounced for the descriptive ratings.

Second, it was hypothesized that there would be an interaction between grade level and color. Specifically, stories written in response to the color pictures would receive higher ratings overall, than the black and white pictures, but this difference would be larger for fifth graders than for eighth graders.

Finding: These hypotheses were not supported by the analyses, the main effect for color was not significant nor were color x grade level interactions.

Research Question # 4

What effect does grade level have on children's ability use utilize picture prompts as a stimulus for narrative writing?

It was hypothesized that the ratings assigned to eighth graders' stories would be higher than rating assigned to fifth graders' stories. This potential finding held little theoretical interest in and of itself, with the exception that this difference was expected to be most pronounced for the events ratings.

Finding: This hypothesis was supported by the analyses for total scores (see Table 7), the descriptive component (see Table 11), the event component (see Table 13), and the prior event item (see Table 15); eighth graders wrote significantly better than fifth graders. However, scores of eighth grade students were not significantly higher for the narrative component (see Table 9) or the after events item (see Table 17). Of particular interest is that grade level was significant for prior events, but not for after events. This indicates that eighth graders (M = 2.07, SD = 1.11) generated significantly more prior events than fifth graders (M = 1.68, SD = 1.02), but that fifth graders (M = 1.59, SD = .92) and eighth graders (M = 1.52, SD = .90) generated a comparable number of after events.

Chapter V

DISCUSSION AND RECOMMENDATIONS

This chapter is organized around the following topics: (a) discussion of the findings, (b) implications of the study, (c) recommendations for future research.

The purpose of this study was to evaluate the effect that visual characteristics of pictures used as writing prompts have on the quality of narrative writing produced. Two sets of four pictures that controlled for content, but were varied in style and color: (a) color photograph, (b) black and white photograph, (c) color drawing, and (d) black and white line drawing, were used to elicit stories from 100 fifth grade and 133 eighth grade students. Participants were randomly assigned to one of the four style/color groups and asked to write once in response to each of two pictures with different content (a) a cliff rescue and (b) a delivery man with a box. The content of the pictures was held as constant as style would allow and the pictures were counter-balanced within each group to control for confounding due to occasion.

Each story was scored by two raters using a rubric that contained three components: narrative, descriptive, and events. These scores were added together to obtain a total score. The overall design was a four-factor repeated measures ANOVA with style, color, and grade level as between subject factors and content as a within subject factor. Six ANOVAs were applied to the following scores: (a) total score, (b) narrative component, (c) descriptive component (d) event component, (e) item 9 prior events, and (f) item 10, after events.

Discussion

This section discusses the findings and offers conclusions organized according to the research questions.

1. What effect does content have on the quality of narrative writing?

2. What effect does style have on the quality of narrative writing?

3. What effect does color have on the quality of narrative writing?

4. What effect does grade level have on children's ability to utilize picture prompts as a stimulus for narrative writing?

Content

One of the reasons given for using picture prompts instead of written prompts for eliciting writing is that the use of written prompts, particularly "interesting and familiar" topics has been shown to result in large error variances associated with participant by topic interactions (Pitts, 1978; Quellmalz, 1979). However, a study by Cole, and

colleagues (1997) found significant mean differences on content of picture prompts indicating that the content of picture prompts may also result in participant by topic interactions. Style and color, however, confounded these findings; one prompt was a color photograph, the other a black and white line drawing.

This study confirms findings from previous studies that picture content plays a major role in the generation of stories (Bates, et al., 1991; Cleaver, 1993; Cole, et al., 1997; Cycowicz, et al., 1994). The current study found significant mean differences between the content of picture prompts in the production of narrative writing when style and color are held constant. The mean scores for the cliff picture *(M*=16.33, *SD*= 4.76), created according to the criteria proposed by Hooper, and colleagues (1994) were significantly higher than the mean scores for the box picture (*M*=13.58, *SD*=4.88) which was modeled after a prompt from the PIAT-R (Markwardt, 1989). This suggests that the criteria for content of narrative picture prompts proposed by Hooper, and colleagues (1994) are valid. These data also suggest that error variances due to participant by topic interactions using written prompts (Pitts, 1978; Quellmalz, 1979) are not alleviated by the use of picture prompts.

An examination of the effect of content of picture prompts in relation to grade level gives an indication of the magnitude of the effect that content of picture prompts can have on the quality of narrative writing. Mean differences for total scores between fifth and eighth graders were expected to be significant, and of little theoretical importance; it was expected that eighth graders would have higher scores than fifth graders. Therefore, it is interesting to note that when mean differences are compared across the content of pictures prompts, fifth graders writing from the cliff pictures (*M*=15.37, *SD*=3.58), had higher, although not significantly higher, mean scores than eighth graders writing from the box pictures (*M*=14.34, *SD*=5.22).

Style and Color

While the criteria for creating narrative picture prompts established by Hooper, and colleagues (1994) was supported by the data in this study, there was one notable exception. Hooper suggested that color photographs should be used instead of black and white line drawings. For total scores, participants writing from color photographs (*M*=15.11, *SD*=4.62) had higher, but not significantly higher, means than the participants writing from black and white line drawings (*M*=14.60, *SD*= 4.90). This is, however, qualified by a significant content by style interaction which is discussed below.

The literature on children's preferences also supports using color photographs because children prefer photographs to drawings, and color to black and white, when rank ordering picture preferences (Gardner, Winner, & Kircher, 1975; Mayatt & Carter, 1979; Ramsey, 1989; Sloan, 1971). These preferences do not, however, translate in to mean scores that are significantly higher for either style or color. This study found that there were no significant main effects for style or color for total scores, or for any of the component scores.

There was, however, a significant content-by-style interaction for the total score, the narrative component, and the descriptive component. Students writing from the box pictures had higher scores when writing from a drawing but higher scores on the cliff picture when writing from the photographs. While not expected, two reasons for this interaction come to mind. First, it may be that photographs elicit higher writing scores when used with realistic action-based subject matter, but that blander, more static subject matter such as the box picture became more interesting through the use of drawings. If so, the criteria proposed by Hooper, and colleagues (1994) that color photographs be used, is confirmed by this study, provided that the rest of the criteria is also adopted. Another possibility, however, is that slight differences in content between the photographs and the drawings of the box prompt used in this study may have contributed to this interaction; in the photographs the deliveryman's face was obscured, in the drawings he is smiling. This subtle change in content may have been enough to override the effect of style.

Grade Level

Significant mean differences between fifth grade and eighth grade writing samples were expected, and were not considered to be of any theoretical importance; therefore lack of significant difference warrants further investigation and discussion. As expected, the main effect for grade level was significant for (a) total scores, (b) the descriptive component, (c) the event component, and (d) Item 9 (prior events). However, it was not significant for Item 10 (after events) or the narrative component.

Previous studies in which elementary school children were asked to write from pictures suggest that pictures, by being more concrete than words, lock children into the picture, hampering the story-telling process (Bates, 1991; Hough, 1987; Ramirez, 1996). These findings were contradicted in a study of eighth grade students (Baker, 1979). Therefore, it was hypothesized that younger children would generate fewer events not depicted in the picture than older children. This hypothesis was confirmed by the analysis reported in the previous section; eighth graders (M = 3.59, SD = 1.63) had significantly higher scores than fifth graders (M = 3.26, SD = 1.57) on the events component, indicating that there are developmental differences in the ability to generate stories from pictures.

However, the separate analyses of the two items comprising the event component undertaken due to the reversed means on content revealed another finding. The main effect for grade level was significant for prior events, the eighth grade students (M=1.89, SD=1.17) generated more prior events than the fifth grade students (M= 1.41, SD=1.02) But, the main effect for after events was not significant, fifth graders (M=1.75, SD=.95) generated roughly the same number of after events as eighth graders (M=1.73, SD=.95). This suggests that children's ability to generate after events from picture prompts may develop before their ability to generate prior events.

There was also no significant main effect for grade level on the narrative component, which is comprised of theme, plot, setting, and characterization items. This

may suggest that abilities associated with these items develop prior to abilities associated with the descriptive components: diction, figurative language, sensory language, and integration. Certainly the concept of plot develops very early in children. Applebee (1978) found that as early as age two children could distinguish the beginning and end of stories by their opening and closing phrases. The data from the current study, however, contradicts the findings of the study by Tamburrini (1983), which found that 13-year olds produced stronger plots and more interaction between characters than 10-year olds.

Another possibility is that the non-significant main effect for grade level on the narrative component is a product of the rubric. Both raters expressed concerns regarding scoring the fifth grade writing samples. Specifically that the wording of the rubric allowed for too much difference in the quality of writing within a given level of scoring; a fifth grade writing sample might be inferior to an eighth grade writing sample but could attain an identical score due to the wording of the criteria. These concerns were confirmed by the generalizability study which had a lower generalizability coefficient for the fifth grade samples (.72) than for the eighth grade samples (.77). It may be that the rubric is not sensitive enough on some items to adequately measure developmental differences.

Implications of Findings

As the use of performance-based assessment practices for writing continues to increase, the use of pictures as a means of eliciting writing samples will undoubtedly increase as well. However, there are numerous graphic design issues that may affect the quality of the writing produced from picture prompts, and these need to be considered when designing such prompts. This study has implications for the design of both tests and classroom exercises that use pictures to elicit writing samples.

Similar to findings from the study by Cole and colleagues (1997), writing samples in this study differed systematically depending on the type of visual stimuli; content of picture prompts was the primary factor in producing better narratives. Both this study and the study by Cole, and colleagues (1997) used picture prompts which “set the stage” for the story; the pictures contained events which could be used to produce a story. Based on the study by Cole and colleagues and this study, the criteria for picture prompts proposed by Hooper and colleagues (1994) should be adopted when using this type of picture to elicit stories. It should be noted, however, that the participants in this study were fifth and eighth graders in regular English classes from a predominately white population in a rural area of Virginia. The findings of this study may not be replicated using other populations, prompts, or writing tasks.

Pictures are more concrete than writing and are perceived in a *gestalt* manner (Arnheim, 1974). This can lead to the mistaken assumption that using visual images as prompts for writing is a simpler cognitive process than the use of written prompts. However, pictures as a form of communication are, in their own way, as complex in nature as written communication. While content may be the overriding factor in

children's written responses to pictures, conveying its meaning is still dependent upon the visual characteristics embedded in any picture: color, line, texture, detail, light, shade, shape, proportion, perspective and complexity. Together, the subject matter and the visual characteristics affect how a picture is perceived, what emotional and aesthetic responses are engendered, and how meaning is created. Add to this complexity the fact that children appear to respond to and interpret pictures differently at different developmental stages, and the task of untangling the Gordian knot of visual characteristics of picture prompts that may affect writing has only begun.

Suggestions for Future Research

From a review of the literature, analysis of the data, and observations during the investigation, some recommendations for future research are as follows:

According to Winn (1993) the initial affective response to a picture during the pre-attentive phase will determine whether or not the viewer proceeds to the attentive phase, and once there, how deeply the picture is processed and interpreted. Since better writing is likely to be produced from pictures that are more deeply processed, children's preferences for pictures is an area that warrants further investigation. A review of the literature revealed that children prefer more realistic styles of pictures; but none of the studies asked children about their preferences for pictures in connection to prompts for writing. In this study the main effect for content and a content by style interaction were significant. Therefore, further study regarding content and style preferences for pictures used as prompts for writing is suggested.

The interaction between content and style found in this study also warrants further investigation. Was this interaction a product of the subtle change in content between the photographs and the drawings of the box prompt or does style have an effect on writing depending upon the content of the image? Another possibility is that drawings are more stable across content than photographs. If this is so, it could have ramifications for the use of drawings versus photographs in activities that use pictures as writing prompts.

Another issue related to content is the use of more general pictures to elicit writing samples. The pictures designed for this study controlled for complexity by using a portrait orientation, a similar perspective, and only three figures, at roughly the same distance from the viewer. It would be interesting to compare stories generated from more general prompts such as the empty basket used in the Ohio Fourth Grade Proficiency Tests (Ohio State Department of Education, 1996) to stories written from prompts designed according to the Hooper (1994) criteria.

The use of images as prompts for writing may be a motivating factor for some children, particularly children who are visual rather than verbal learners. One participant of the study was a fifth grade male who "hates to write"(personal communication, 1998). He was also visually literate as evidenced by an intricate drawing that his teacher showed me while saying "he's my artist" (personal communication, 1998). This child spent several minutes inspecting the picture and asking questions about the assignment. During the first writing assignment, he was the last person to finish, and during the second

writing assignment, he was still writing at the five-minute warning. His teacher's statement was that "he never writes for this long" (personal communication, 1998). His interest and behavior could be attributed to novelty. However, it may also be that using pictures to prompt writing may help motivate reluctant writers, particularly those with a high degree of visual literacy as was the case with this student. This issue warrants further study.

Several factors outside the scope of this study, but which were identified as possible variables through the literature review, should also be examined for their effect on the use of pictures as prompts for writing. Reader response theory, developed by Rosenblatt (1982) has been incorporated into visual response theories. Previous research has shown that the adoption of an aesthetic stance when viewing pictures will result in storytelling (Russell, 1993). Therefore, it is likely that the adoption of an aesthetic stance when using pictures as prompts for writing would also result in the production of written narratives as opposed to descriptive passages. Russell also identifies other stances towards pictures: observation, interpretation, personal memories, participation, and intrusion, and suggests that taking multiple stances towards an image creates greater depth of meaning. This has implications for the production of richer narratives. High road/low road transfer has also been shown to have an affect on the production of narratives with high road transfer producing stronger narratives. How transfer occurs, and strategies to increase the ability of writers to use high road transfer when using pictures as prompts for writing also warrants further study.

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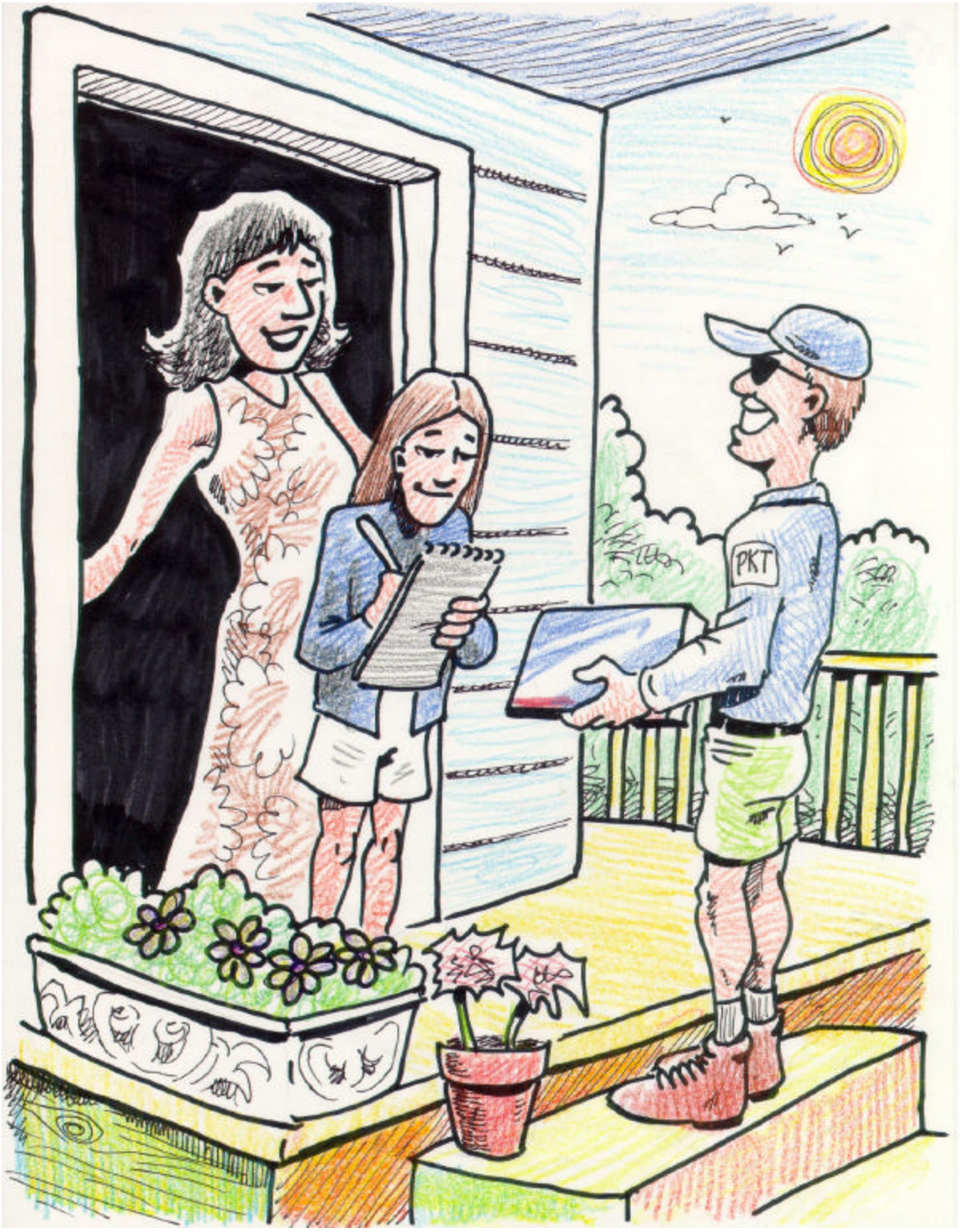
Appendix A: Color Photograph - Box

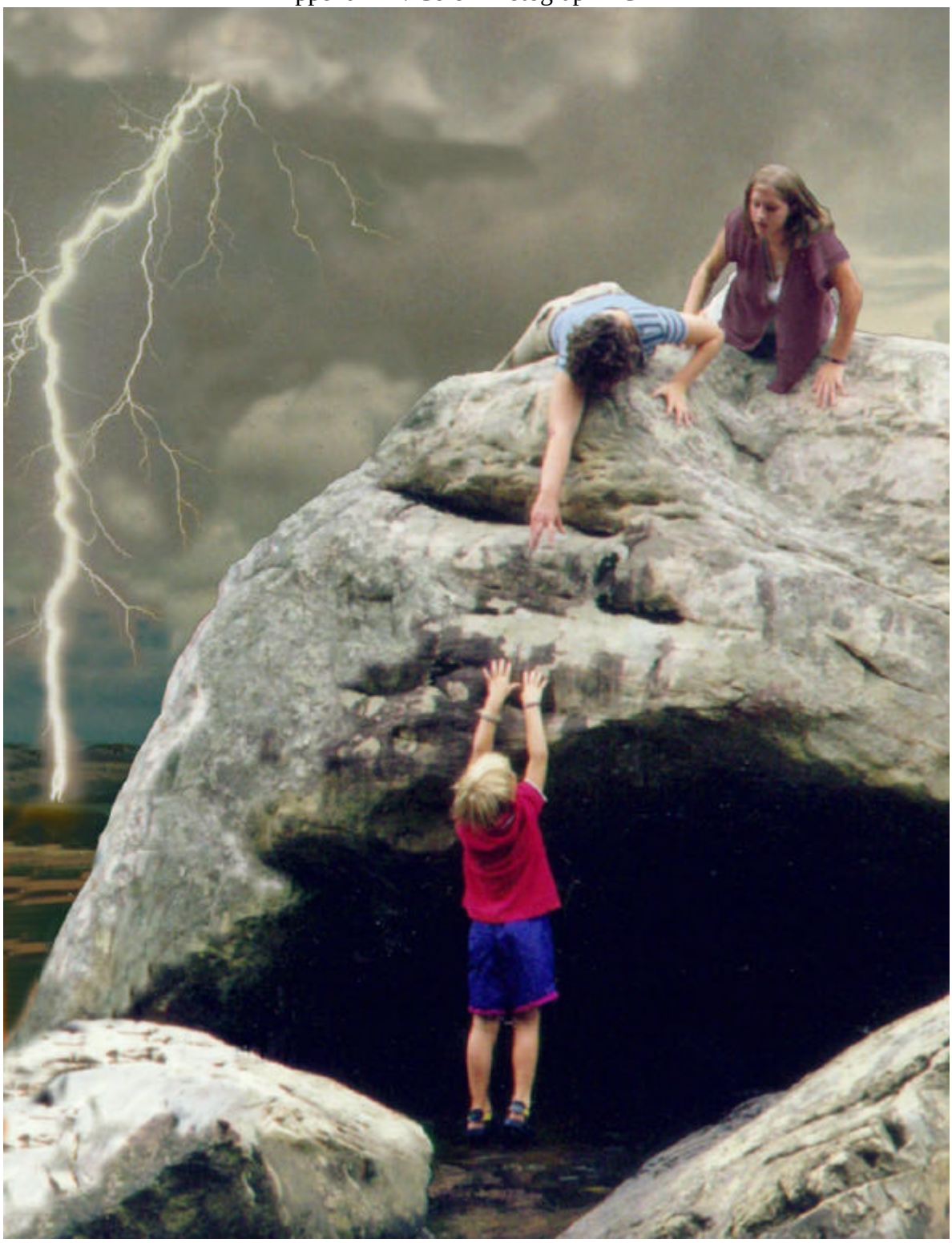
Appendix A: Black and White Photograph - Box

Appendix A: Color Drawing - Box

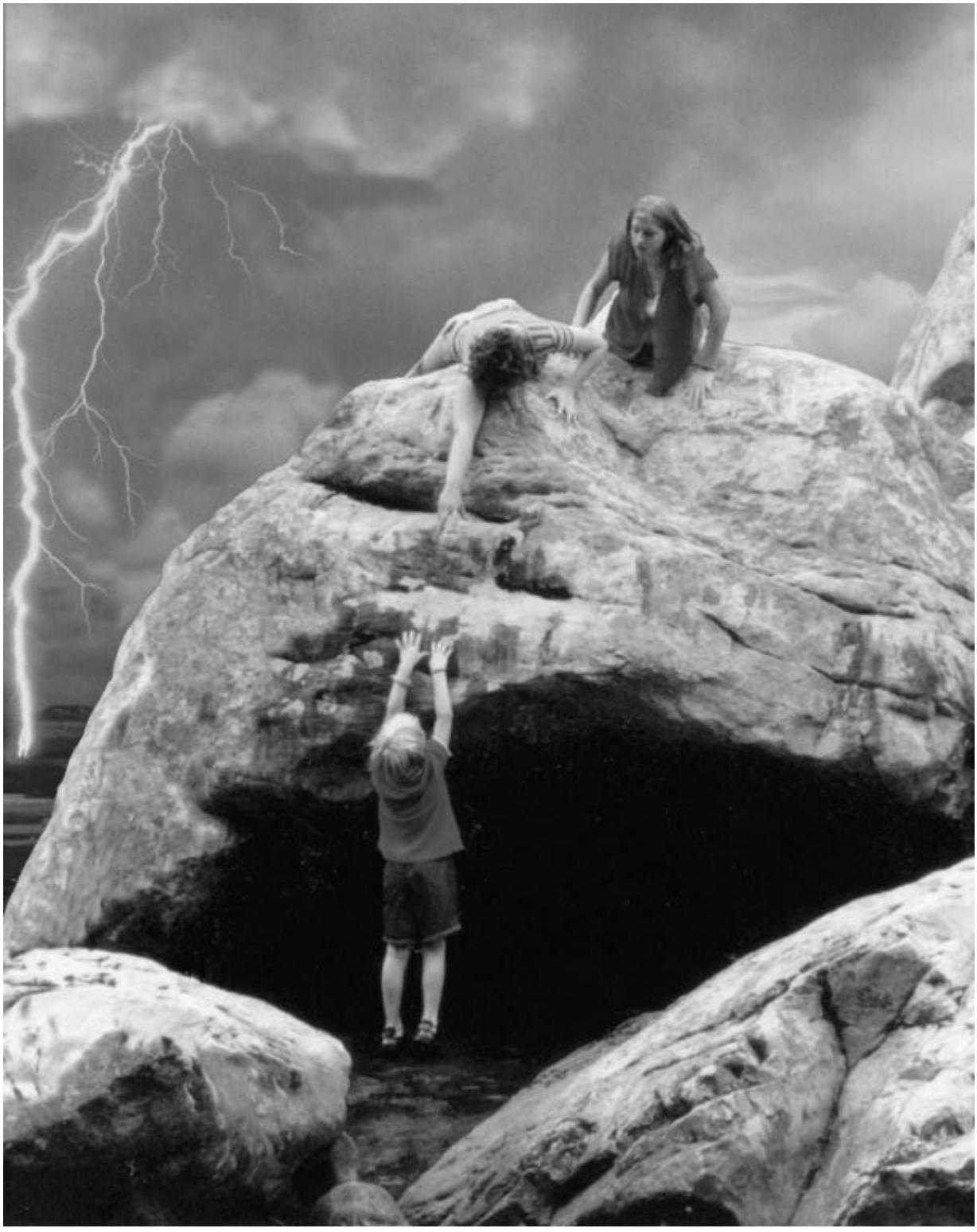


Appendix A: Black & White Drawing - Box

Appendix A: Color Photograph - Cliff

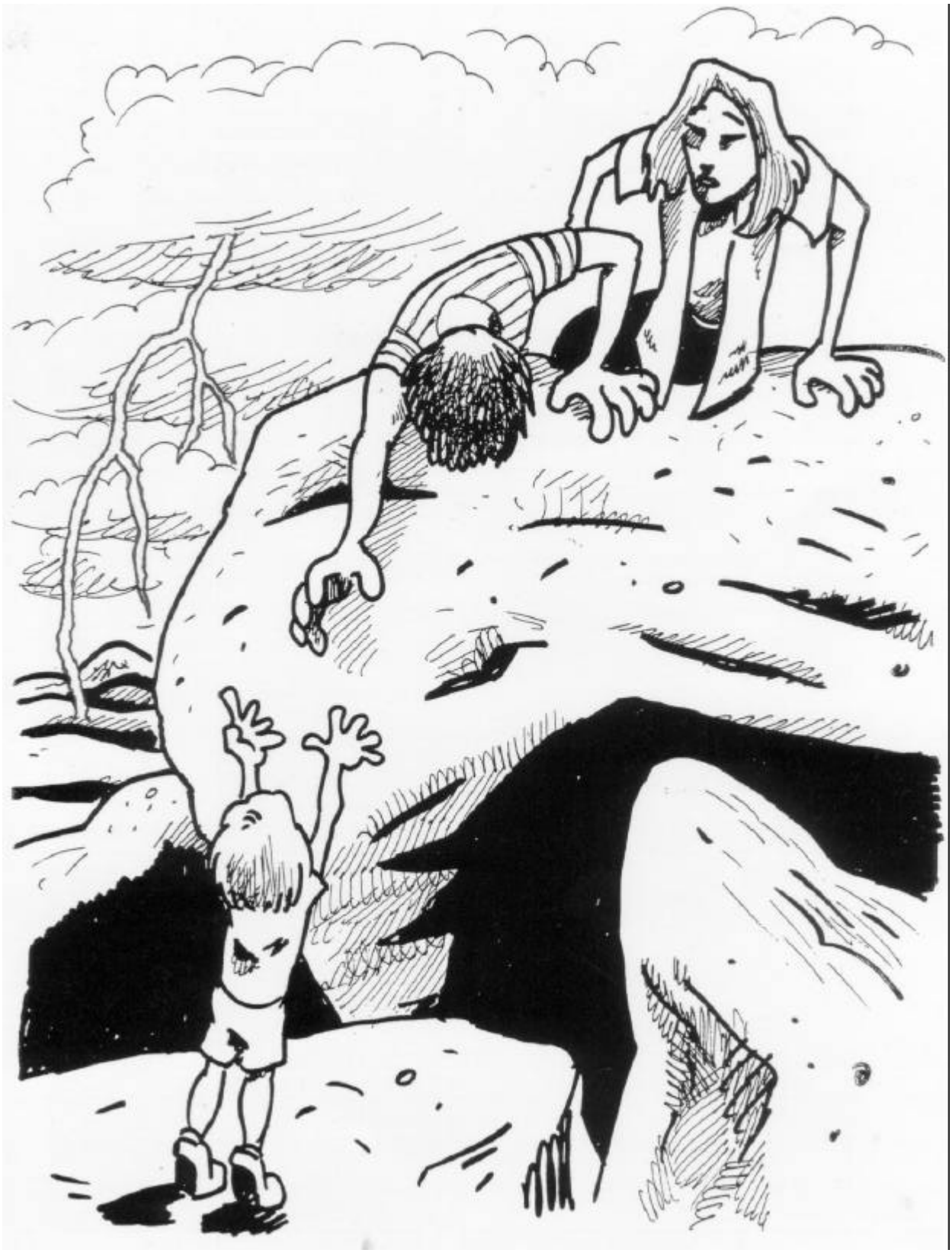


Appendix A: Black & White Photograph - Cliff



Appendix A: Color Drawing - Cliff

Appendix A: Black & White Drawing - Cliff



Appendix B: Evaluative Criteria for Picture Prompts

The "Delivery Man with a Box" picture set includes an example of each of these styles:

Color Photograph	Agree	Disagree
Black and White Photograph	Agree	Disagree
Color Illustration	Agree	Disagree
Black and White Line Drawing	Agree	Disagree

Within the limitations set by style, the following variables are held consistent across picture sets:

	Strongly Agree	Agree	Disagree	Strongly Disagree
Subject matter	1	2	3	4
Color	1	2	3	4
Composition (arrangement of elements)	1	2	3	4
Line (representation of object by contours)	1	2	3	4
Mass (forms have a 3-dimensional quality)	1	2	3	4
Depth (actual or implied expression of distance)	1	2	3	4
Detail (the small parts of the composition)	1	2	3	4
Texture (surface quality of objects)	1	2	3	4

Appendix B: Evaluative Criteria for Picture Prompts

The “Cliff Rescue” picture set includes an example of each of these styles:

Color Photograph	Agree	Disagree
Black and White Photograph	Agree	Disagree
Color Illustration	Agree	Disagree
Black and White Line Drawing	Agree	Disagree

Within the limitations set by style, the following variables are held consistent across picture sets:

	Strongly Agree	Agree	Disagree	Strongly Disagree
Subject matter	1	2	3	4
Color	1	2	3	4
Composition (arrangement of elements)	1	2	3	4
Line (representation of object by contours)	1	2	3	4
Mass (forms have a 3-dimensional quality)	1	2	3	4
Depth (actual or implied expression of distance)	1	2	3	4
Detail (the small parts of the composition)	1	2	3	4
Texture (surface quality of objects)	1	2	3	4

Appendix C: Response Sheet

ID # 1 Writing Assignment 1: Color Photo - Box Grade Level _____ Sex: M F

Please write a story about this picture. You will be given 20 minutes to complete this assignment.

Appendix D: Distractor Exercise

AUTUMN COLOR

AUTUMN	B	S	V	F	R	A	K	E
DIE								
FALL	F	A	L	L	L	W	X	P
FIRE								
FLIES	P	U	M	P	K	I	N	S
GOLD	Q	T	U	R	N	N	E	G
LEAVES								
MAPLE	G	U	F	R	E	D	N	S
MIST								
PUMPKINS	O	M	I	S	T	L	I	W
RAKE	L	N	R	M	A	P	L	E
RED								
TURN	D	L	E	A	V	E	S	K
WIND								

Appendix D: Distractor Exercise

WINTER WONDERLAND

ICICLES	C	S	K	I	I	N	G	C	P
GLOVES									
SNOW	S	H	A	T	M	S	N	O	W
WINTER	L	K	O	C	G	T	Q	L	I
SKIING									
SLED	I	C	I	C	L	E	S	D	N
COLD									
FROSTY	P	G	S	K	O	E	F	C	T
CHOCOLATE	P	N	R	L	V	L	S	O	E
SLEET									
FIRE	E	F	I	R	E	S	A	A	R
HAT	R	B	W	I	S	D	V	T	N
COAT									
SLIPPERY	Y	T	S	O	R	F	H	U	E

Appendix F: Preferences Survey

Tell me what you think!

These are all of the pictures that you or your classmates wrote stories from.

CIRCLE the one picture that you would **MOST** like to have written a story about. Why do you like that picture?

_____

_____

_____

Put an **X** across the one picture that you would **LEAST** like to have written about. Why don't you like that picture?

_____

_____

_____








Appendix E: Script

Script for Eighth Graders

DAY 1
Classroom teacher introduced me……

Okay, so what I am trying to do is learn more about how middle school students write, because like you I'm still in school. So what your teacher and I would like all of you do over the next two days is write two stories. I am also doing this with (other teacher's name) class at the same time, so I will be going back and forth between the two classrooms.

(Teacher's name) will pass out packets to you with your name on them. Please don't open the packet until I ask you to. While the envelopes are being handed out let me explain what you will be doing. In your packet you have three envelopes. The envelopes are labeled Writing Assignment 1, Writing Assignment 2, and Preferences, and there is also a mechanical pencil that you may keep.

I will ask you to open the envelope and take everything out. Then I will have you open the envelope labeled Writing Assignment 1. Inside this envelop is a picture and a piece of paper to write on. There are two pieces of information to be filled out at the top; just write in your grade level and circle male or female. Once everyone has filled it out I will tell you when you can begin writing.

You will have 20 minutes to write a story about the picture, after 15 minutes I will tell you that you have 5 minutes left. Then I will give a warning one-minute before time is up so that you can finish up. Okay, does everyone have their packet? Good.

Go ahead and open it up.

Okay, we need to get started. Everyone find the envelope with the label Writing Assignment #1 on it. Put the other ones off to the side or under your desk.

Okay, you can open up Writing Assignment 1. Please put your grade level in the blank at the top of the paper and circle "M" for male or "F" for female. Do not put your name on this paper, your teacher will know who wrote it by the ID number at the top. When I tell you to begin, I want you to write a story about this picture. If you run out of room on the front side, just turn the paper over and write on the back. If you don't know how to spell a word, don't worry about it, just do your best. And you can write in cursive or print, which ever you prefer. Any questions? (I answered any questions at this point) Okay, everyone ready? Look at the picture. You may begin.

(After 15 minutes): You have five more minutes.

(After 19 minutes): You have one minute to finish up.

(After 20 minutes): Please stop writing. I'd like everyone to put their story and the picture back in the envelope that they were in, and then put them back in the envelope with your name on it. If you will pass them all up to the front your teacher (or teacher's name) will collect them. And I'll see you again tomorrow. Thank you so much for helping me with this study.

DAY 2

Hi there, everyone ready to write again? Basically you will be doing the same thing as yesterday except you will have a different picture. Who wants to distribute the packets? Thanks.

Okay, you can open up Writing Assignment 2. Just like yesterday, put your grade level in the blank at the top of the paper and circle "M" for male or "F" for female. Okay, everyone ready? Any questions? No? Look at the picture. You may begin.

(After 15 minutes): You have five more minutes.

(After 19 minutes): You have one minute to finish up.

(After 20 minutes): Please stop writing. I'd like everyone to put their story and the picture back in the envelope that they were in.

There is one envelope left. Go ahead and open it. The pictures you see are all of the ones either you or someone else in the room used to write from. And I'd like to know what you think about the picture. So what I'd like you to do is circle the one picture that you like best and tell me why you like that one the best. Then I would like you to put a big X through the one you like the least and tell me why you don't like that picture.

(Wait while they complete the preferences survey) Everyone finished? Please put the survey back in its envelope. Find the envelope with your name on it and hold it up in the air, (teacher's name) will collect them. I'll come around and collect all of the writing assignments and the survey.

I'd like to thank you all for helping with this study. In a couple of months I will give the writing samples back to your teacher.

Script for Fifth Graders

Classroom teacher introduced me……

Okay, so what I am trying to do is learn more about how children write, because just like you I'm still in school. So what your teacher and I would like all of you do today is write two stories.

(Teacher's name) will pass out packets to you with your name on them. Please don't open the packet until I ask you to. While the envelopes are being handed out let me explain what you will be doing. In your packet you have three envelopes. The envelopes are labeled Writing Assignment 1, Writing Assignment 2, and Preferences, and there is also a mechanical pencil that you may keep.

I will ask you to open the envelope and take everything out. Then I will have you open the envelope labeled Writing Assignment 1. Inside this envelop is a picture and a piece of paper to write on. There is a little bit of information to be filled out at the top, just writing in your grade level and circling male or female. Once everyone has filled it out I will tell you when you can begin writing.

You will have 20 minutes to write a story about the picture, after 15 minutes I will tell you that you have 5 minutes left. Then I will give a warning one minute before time is up so that you can finish up. Okay, does everyone have their packet? Good.

Go ahead and open it up. (At this point there was usually a disruption over the pencils with the students comparing them.)

Okay, we need to get started. Everyone find the envelop with the label Writing Assignment #1 on it. Put the other ones off to the side or under your desk.

Okay, you can open up Writing Assignment 1. Please put your grade level in the blank at the top of the paper and circle "M" for male or "F" for female. Do not put your name on this paper, your teacher will know who wrote it by the ID number at the top. When I tell you to begin, I want you to write a story about this picture. If you run out of room on the front side, just turn the paper over and write on the back. If you don't know how to spell a word, don't worry about it, just do your best. And you can write in cursive or print, which ever you prefer. Any questions? (I answered any questions at this point) Okay, everyone ready? Look at the picture. You may begin.

(After 15 minutes): You have five more minutes.

(After 19 minutes): You have one minute to finish up.

(After 20 minutes): Please stop writing. I'd like everyone to put their story and the picture back in the envelope that they were in.

Okay, time for a break. I have a word-find puzzle that you can do for a few minutes because I know writing is hard work and your fingers cramp up. If you don't finish it, don't worry, you can keep the puzzle and work on it later.

After break

Time to write the next story. This will be just like the one you have already done except you will have a different picture. Okay, you can open up Writing Assignment 2. Just like before, put your grade level in the blank at the top of the paper and circle "M" for male or "F" for female. Okay, everyone ready? Any questions? No? Look at the picture. You may begin.

(After 15 minutes): You have five more minutes.

(After 19 minutes): You have one minute to finish up.

(After 20 minutes): Please stop writing. I'd like everyone to put their story and the picture back in the envelope that they were in.

There is one envelope left. Go ahead and open it. The pictures you see are all of the ones either you or someone else in the room used to write from. And I'd like to know what you think about the picture. So what I'd like you to do is circle the one picture that you like best and tell me why you like that one the best. Then I would like you to put a big X through the one you like the least and tell me why you don't like that picture.

(Wait while they complete the preferences survey) Everyone finished? Please put the survey back in its envelope. Find the envelope with your name on it and hold it up in the air, (teacher's name) will collect them. I'll come around and collect all of the writing assignments and the survey.

I'd like to thank you all for helping with this study. In a couple of months I will give the writing samples back to your teacher.

Appendix G: Field Notes

Date	Time	Break	Grade	# Students	# Writing Samples
10/28	8:50-10:09	19 min	5	12	**11 Usable** 0 Opt-out 1 Absence

I already knew the teacher from having class together. She met me in the office and we chatted while I waited for her students to get back from P.E. The classroom was in a trailer behind the school that was large, bright, and inviting. They had a class kitten that was put outside so that the students would not be distracted. I asked if we could pull the desks apart since they were arranged in clusters of four. So when the students arrived the first thing they did was move the furniture around. Then the teacher introduced me as a student at Virginia Tech who was doing a study about how children write. I started into me talk about what we would be doing while she handed out the packets.

One child asked about writing in cursive or printing. I told the class that either one was fine, which ever they felt more comfortable with. I added that to my list of fifth grade instructions.

1st Writing Assignment: At the 5 minute warning all but one student with the box prompt had finished writing, five students with the cliff prompts were still writing.

Long break due to fact that the students usually took a bathroom break at this time. They finished the distracter exercise in about 5 minutes so the rest of the time they read or drew pictures, it was basically free time for them.

2nd writing Assignment: At the 5 minute warning all but two students were finished writing. Both had cliff pictures.

One boy in this class was very interested in the pictures and writing stories from pictures. The teacher described him as a student who “hates to write". This student spent several minutes inspecting the picture given to him at the first assignment, and asking questions about the assignment. During the first writing assignment, he was the last person to finish, and during the second writing assignment, he was still writing at the five-minute warning. I went over to the teacher and pointed this out. She said "he never writes for this long. But, he’s my artist.” Then she said, “look at this”, she pulled out a stack of mummies and pulled his from the pile. It had a very intricate pattern drawn on it, far more complex than most of the others in the stack. I asked her if she had ever used pictures to elicit stories before and she said “no.” We spent several minutes talking about other strategies that could also be used to incorporate writing and visuals.

By the time the students finished with the preferences survey I was afraid I would be late getting to the middle school due to the long break they had taken. So I didn’t get to spend any time talking to them about the study.

Date	Time	Break	Grade	# Students	# Writing Samples
10/28	10:30-1:00 11:20-1:45 12:05-2:30 1:30- 2:00	None	8	73	65 Usable 0 Opt-Out 8 Absences

The teacher's classroom management style was very organized and her students seemed to know what was expected, asked few questions, came in, sat down, and worked quietly or read until she asked for their attention. The classroom was fairly small with desks arranged in rows. She had the packets ready with the student's names on them and distributed them to the students.

The first English class period of the day took longer for students to settle down because their first two periods each day were non-academic subjects: band, P.E., and electives. Since the school does not use bells, students trickled into class over about a 5-minute period. The first class had a large number of LD students (teacher's comment) and one physically disabled student with a full-time aid. The last English class each day was immediately following lunch. Like the students in the first English class, they tended to be less focused and took longer to get organized.

Because I was moving back and forth between the classrooms, and this classroom was small and hard to move around in, it was more difficult to see from which pictures students were writing longer. My sense however, was that there were generally more cliff pictures still being used at the five minute warning but that this difference was not as pronounced as it was in the fifth grade classroom.

Date	Time	Break	Grade	# Students	# Writing Samples
10/29	10:40-1:05 11:25-1:50 12:10-2:35 1:40-2:05	None	8	73	65 Usable 0 Opt-out 8 Absences

As on day one, her students were seated quietly and were ready to work when I arrived. There were several students who were absent on the first day, so we had to spend a little time going over the instructions. For most of the students, because they knew what to expect, there were few questions.

As on the previous day, more students were writing from the cliff picture at the 5-minute warning, but only by one or two each class period.

In two of the classes, after they finished the preferences survey, the class wanted to talk more about the pictures and the study, so we discussed it briefly. However, their teacher had an assignment for them so we were not able to talk long.

Date	Time	Break	Grade	# Students	# Writing Samples
10/28	10:40-1:05 11:25-1:50 12:10-2:35 1:40-2:05	None	8	75	68 Usable 1 Opt-out 1 ED (incomplete) 5 Absences

This teacher's classroom management style was very relaxed, and he was not very organized. When I arrived before any of the students, classical music was playing, which he said he usually kept on while his students did their free-write activity at the start of each class period. He had not yet put names on any of the packets so I began in the other classroom to give him time to get organized. His students were noisy, active, and asked numerous questions. They tended to mill around the room until he asked them to sit down. In this class students volunteered or were asked to distribute the packets.

The classroom was arranged with desks in clusters of four so I asked if they could be put into rows. The students cheerfully shoved the furniture around. The teacher commented that they were used to it, that he moves their desks into many different configurations. They moved their desks back to the original arrangement after the writing assignment so that the rearrangement of furniture took place in every class period.

His classroom was larger than the other eighth grade English classroom so moving around in it was easier. Typically, at the 5-minute warning half the class was finished; of those still writing, there were one or two more students writing from the cliff picture than writing from the box picture.

Date	Time	Break	Grade	# Students	# Writing Samples
10/29	10:30-1:00 11:20-1:45 12:05-2:30 1:30- 2:00	None	8	75	68 Usable 1 Opt-out 1 ED (incomplete) 5 Absences

Today I started in this classroom so that the other English teacher would have the 5-minute lag time at the beginning of the period. As on the previous day, the first English class period of the day took longer for students to settle down because their first two periods each day were non-academic subjects located on the lower hall and outside: band, P.E., and electives. In this classroom the process took slightly longer than due to differences in classroom management styles.

On day two, during the approximately 15-minute windows of opportunity, while students in both rooms were writing, I spent most of my time showing this teacher how to use Netscape's HTML editor so that his students could create web-based reports. Therefore, observations on this day are few.

Date	Time	Break	Grade	# Students	# Writing Samples
10/30	9:30-10:30	5 min	5	18	14 Usable 3 Opt-Out 1 Absence

I was acquainted with this teacher from when I worked in the school system so we chatted a bit before her students came in from P.E. She was absent the day I came to talk to the 5th grade teachers about the study so I caught her up on what we would be doing. Because I had not talked to her, she had not told her students that they only had to bring the form back if their parents did not want their scores analyzed. This may be the reason for the high number of opt-outs in this classroom. She commented that she thought the parents had mis-understood the form.

When her students arrived they were full of energy but settled down quickly and paid attention to both their teacher and myself. She has a no-nonsense classroom management style that the students seemed to respect. She introduced me and then pretty much let me run things. I asked her to hand out the packets since she knew her students.

One child asked about spelling so I included that in the directions from this point on.

1st Writing Assignment: At the 5 minute warning one student with the box prompt was still writing, three students with the cliff prompts were still writing.

I had forgotten the distractor exercise but fortunately the librarian at this school is a friend of mine and she always keeps word puzzles on hand for her students. She had a similar (but more difficult) word find puzzle and had enough copies for me to distribute to the first class. She made more copies for me during the day. The students liked the distracter exercise and didn't want to stop working on it at the end of the break. I had to reassure them that they could keep it; that I didn't need it back.

2nd Writing Assignment: At the 5 minute warning no one was still writing.

Date	Time	Break	Grade	# Students	# Writing Samples
10/30	11:30-12:30	7 min	5	18	15 Usable 1 Opt **1 ESL** 1 Absence

I met this teacher for the first time the previous week when I came to the school to schedule the data collection. She was very warm and friendly and went out of her way to help me set up times with the other 5th grade teachers at this school.

Her students also came in right after P.E. These students were very lively and seemed eager to please. Her classroom was arranged in pairs of seats so we had the students pull them apart. We had to do this rapidly because her class goes to lunch right at 12:30 so there wasn't any flexibility in the schedule. The students got excited about being able to keep the pencils and their teacher had to quiet them down. Several of the students wanted to trade pencils, but she told them they could do that over lunch.

I quickly gave directions and her students started writing. Several of the boys made comments like "Cool!", "Wow!" as they pulled out their cliff pictures. At the 5 minute warning only two students were still writing; one box, one cliff. They both finished before the 1-minute warning so I went ahead and handed out the distracter exercise. They started talking and comparing pictures during the break so I asked them not to.

They all finished the second writing assignment before the 20 minutes were up so we started on the preferences survey a little early. Before they all finished, we could hear the 5th grade class next door getting ready to leave for lunch, so the class became restless. The teacher quieted them back down but they were still squirming.

Date	Time	Break	Grade	# Students	# Writing Samples
10/30	1:15 - 2:15	7 min	5	18	14 Usable 1 ED 3 Incomplete

Data collection in this class did not go well.

I met the teacher in the hall before going into her classroom (she was working on a bulletin board of artwork); the guidance counselor was in her classroom giving a talk to her students. She told me to wait outside until the counselor was finished and then go on in. The writing assignment was supposed to be from 1:00 to 2:00 but the guidance counselor didn't finish until 1:10. The teacher and I went in together but then she left the room immediately after introducing me and did not come back for half an hour.

Before I could start the first writing assignment, one of the students, who was emotionally disturbed, got upset with the boy next to him. I separated their desks and the other students shrugged it off, one girl said "he's always like that", but it was difficult to get the students to focus on the task. In addition, three of the children had to leave on a field trip at 2:00 and were so worried about missing their bus that they disrupted the rest of the class at the break and would not start the second writing assignment. I finally told them to go on down to the bus since their teacher had not come back to give them permission; it was impossible to start the second assignment with them in the room.

Their teacher finally came back several minutes later and stayed for the rest of the class period. By this time I was exhausted and just kept saying to myself – It's OK, there is have random assignment to groups.

Date	Time	Break	Grade	# Students	# Writing Samples
11/6	8:20-9:20	5 min	5	20	20 Usable

Two fifth grade teachers team-teach many of their subjects and their students are accustomed to working together in large groups. They decided that due to schedule constraints; trying to find enough time between music and lunch, that it would be easier to do this study as a combined exercise.

There were 9students in one class and 11 in the other, and all were present the day of data collection. The only drawback to this arrangement was that neither of their classrooms was large enough to accommodate all of the students easily. Pairs of desks could not be pulled apart because of lack of space, which meant that students could easily see each other's pictures. This was not so much of a problem at pairs of desks where they had different content, but may have affected outcomes with those students who had identical content but different style/color treatments.

The students were very lively, but well behaved and settled right down to work. They wrote for longer than some of the others groups, with students still writing at the 5-minute warning on both exercises. As in the other classrooms, more of the students spent longer writing from the cliff picture.

This class was eager to talk about the study afterwards and they made comments about both of the pictures, indicating that they like the cliff picture better because it was easier to write a story about and that they liked the photographs. One girl said that she liked the drawing of the box best, but one of the boys said “Yuck” in response.

Date	Time	Break	Grade	# Students	# Wrting Samples
11/6	11:00-12:00	5 min	5	12 5th 16 4th	12 Usable

This is a combined 4th and 5th grade classroom with two teachers. They share two interconnecting rooms, both of which are large enough to accommodate all of the students. The fourth grade teacher was intrigued by the study and wanted her students to participate so these students wrote as well even though their scores were not included in the final analysis.

This group of students was wonderful; they were very self-motivated and there was little down-time, but it appeared to be an internal function rather than overt discipline or intervention on the part of the teachers. When I left I told their teachers that they were the best class of fifth graders I had visited.

I spent some of this class period chatting with one of the teachers who used to be a neighbor of mine so I forgot to see how many students were writing from each of the prompts at the 5-minute warning.

Date	Time	Break	Grade	# Students	# Writing Samples
12/15	9:35-10:40	10 min	5	16	14 Usable 2 Absences

This class of students was very outgoing, enthusiastic, and fun to work with. They loved the mechanical pencils and this proved a distraction; it was a little hard to get them to settle down to work. This may be a product of the background of these students; many of them are from one of the poorer, more remote areas of the county. Being able to keep the pencil was special for some of them; the entire class thanked me for them three times.

Like many of the other classes, on both writing assignments most students seemed to writing for longer from the cliff picture.

At the break in this class one of the students asked if they could work on the distractor exercise together. Their teacher said yes, so they pulled their desks around and then had to pull them back around 5 minutes later.

This class seemed to enjoy the preference survey, they liked being asked for their opinion and we spent several minutes talking about the pictures. Many of the students expressed a preference for the color photographs, with one girl saying, “I wish I had gotten her pictures, (pointing to the girl next to her that had been in the color photograph group).” I said, “the color photographs?” she said yes, and most of the class nodded in agreement.

Appendix H: Writing Sample

ID#	Theme	Plot	Setting	Character	Diction	Figurative	Sensory	Integration	Prior	After
80C										

It was a beautiful day when I, Emily and my parents went on a picnic at the Grand Canyon! Everything was going well and I was having so much fun. So I decided to go looking around. Wouldn't you know it, I couldn't find my way back. I thought it was just a minor detour, but three hours later I was still lost. There was rain pouring. Thunder screaming, and lightning tearing through the dark, black sky. I was running frantically and fell down a hill ripping my shirt. I almost fell off a cliff, but I grabbed on to a little rock. I looked up, and there was my parents on the rock about 10 feet about me. I tried to grab his hand, but I couldn't. I looked back and lightning struck a tremendous boulder, and it was rolling towards me. I jumped and climbed to reach my father's hand. I couldn't do it. Then with a sudden urge of adrenaline I jumped up and grabbed my father's hand as the boulder went thrashing under my feet. That was a day I would never in my life ever forget!

Appendix I: Scale Development and Pilot Test

SCALE DEVELOPMENT AND PILOT TEST

In order to examine the effects of content, style, and color of picture prompts on the production of narrative and descriptive writing, a scale measuring these two types of discourse as distinct constructs was needed. While there are many writing scales available, a review of the literature revealed that existing rubrics are not constructed in a manner that would allow writing samples to be scored separately on narrative and descriptive constructs, or that rendered scores with an interpretable numeric value. Therefore, a study was undertaken to determine which characteristics of writing are considered narrative, which are considered descriptive, and to develop a primary trait assessment scale that measures both traits in a manner that could be scored on an interval scale.

This report chronicles (a) the creation of a narrative/descriptive writing rubric, (b) rater training, and (c) the pilot study (*N*=60) that was conducted to determine the validity and reliability of the instrument. The rubric was created using information gathered from the literature, focus groups, an expert panel and the raters. The scale was then pilot-tested and several analyses undertaken: (a) a factor analysis to verify the construct validity of the scale, (b) a generalizability study to determine inter-rater reliability, (c) a decision study to determine the number of items and raters needed for the main study, (d) observations to determine the optimal length of time to allow for the writing.

Scale Development

The original version of the rubric called for scores on two components: narrative and descriptive writing. Operational definitions of these constructs were identified through a review of the literature and refined during a focus group meeting. The rubric was designed in accordance with criteria identified through a literature review with the aid of members of a focus group, all of whom had expertise in teaching English at the K-12 level. After the focus group met, the scale was formalized, and emailed to the focus group for additional comments. The scale was revised again based on these comments and then emailed to a panel of experts for review. Based on feedback from the expert panel, slight changes were made in the final rubric.

Rater Training

Raters were trained in a two-hour session and then gained experience using the rubric by scoring writing samples obtained in a pre-pilot test (*N*=9). While only nine children participated in this test, they each wrote four times in response to two different pictures (“delivery man with a box” and “storm”) and two sets of instructions (“write about this picture” and “tell a story about this picture”), for a total of 36 writing samples. Based on comments by the raters in a post-scoring training session, adjustments were made to the rubric, the most important of which was changing the number of levels from four to five. Both raters who participated in the pre-pilot test also scored the writing

samples of the pilot test. A second round of rater training was conducted prior to the scoring of the pilot test samples. During this session scores from the pre-pilot test writing samples generated using the "box" picture and the “story" instruction were compared. Differences in scoring were discussed until agreement was reached. In addition, the raters were given a copy of the revised rubric and asked if the revisions helped them reach agreement. Based on comments by the raters, the term and/or was added to lists of characteristics.

Pilot Test

The pilot test was conducted at Blacksburg Christian School. Participants were 62 students in fourth through eighth grade. Writing samples were collected in the regular classroom. All students were asked by their teachers to participate in the activity, but only the writing samples of those students who returned parental permission forms were used for data analysis. The “storm” picture and the “tell a story” instruction were used in the pilot test based on results of the pre-pilot test which showed that this combination of picture and instruction produced the best writing samples. Participants were instructed to fill out the demographic information (grade level and sex) at the top of the writing form and then to wait for the signal to proceed. They were told that they would have twenty minutes to write a story, at the end of 15 minutes they would be given a five-minute warning. When the 20 minutes were up, all student permission forms, writing samples, and pictures were collected. After the samples were collected participants were asked if they felt they had enough time to complete the task.

Validity. To verify the construct validity of the scale theorized by the focus group and expert panel, the correlations among the ratings for the eight items were subjected to a principal components analysis followed by a varimax rotation. Three separate analyses were conducted: first the scores of each of the two raters were analyzed separately and then analyzed again by averaging the scores across raters. The results of the analyses are reported in Table 1.

Table 1: Factor Analysis – Pattern Matrix

	Rater 1		Rater2		Averaged	
	Factor 1 Descriptive	Factor 2 Narrative	Factor 1 Descriptive	Factor 2 Narrative	Factor 1 Descriptive	Factor 2 Narrative
Narrative Component						
Item 1: Theme		.828		.813		.878
Item 2: Plot		.444		.516		.589
Item 3: Setting	.521	.469	.344	.319	.606	.405
Item 4: Character	.473	.574		.454	.438	.584
Descriptive Component						
Item 5: Diction	.713	.356	.810	.359	.790	.392
Item 6: Figurative	.490		.619		.546	
Item 7: Sensory	.876		.962		.951	
Item 8: Integration	.937		.862		.930	
Cumulative %	57%		55%		64%	

While all analyses resulted in two factors with no attempt to force factors, none of the factor analyses obtained the simple structure theorized by the literature review, focus group, and expert panel (see Table 1 for the pattern matrix). Using the averaged scores from the pattern matrix, factor one consists of all the descriptive items with both setting and characterization double loading on this factor. This makes sense because it is virtually impossible to describe adequately settings or characters without using

descriptive language. All of the items theorized to be sub-domains of narrative construct loaded on factor two. The setting item, however, also loaded on this factor, but less strongly than on factor one. In addition, diction, which is theorized to be part of the descriptive factor, loaded more heavily on the narrative factor, contrary to expectation. Again, this makes sense because word choice can profoundly influence the development of plot and theme as well as aid in creating well-developed characters and settings.

Reliability. Reliability of the instrument was determined by conducting a generalizability study of the pilot-test data. All writing samples were scored by two raters and the data were analyzed using GENOVA (Crick & Brennan, 1983), a program designed to run generalizability and decision studies. The generalizability study identified three facets as potential sources of error: Participants x Raters x Items.

The initial G study revealed that inter-rater agreement was excellent, accounting for 0% of the variance across all subjects (see Table 2). There was, however, a participant x rater interaction effect that accounted for 5 percent of the variance. When the participants were split into upper elementary (n=24) and middle school (n=36) age groups, the variance component for raters increased to 7 percent for the lower age group and remained at 0 percent for the middle school age group. This indicates that raters were more consistent in scoring the writing samples of the older participants than the younger participants. This may be due in part to the fact that neither rater had experience working with elementary school children.

Table 2

Pilot study, Variance Components for single observations– EMS Equations

Source	*df*	Mean Squares	Variance Component	Percent of Variance
Participants	59	4.5307	.2147	17
Raters	1	.4593	0	0
Items	7	65.3998	.5309	42
Participants x Raters	59	.8004	.0643	5
Participants x Items	413	.5805	.1473	12
Raters x Items	7	1.3903	.0184	1
Participants x Raters x Items	413	.2859	.2859	23
G Coefficient with 2 raters	.76			

A decision study was conducted to determine the generalizability coefficient for the scale using two, three, and four raters, and for both eight and ten item scales. The generalizability coefficient is analogous to a reliability coefficient in classical measurement theory. The G coefficient for the existing eight-item scale and using two raters was .76. Based on an extrapolation of the existing data, a ten-item scale and two raters should increase the G coefficient to .78. Based on this information, and the need for an event components to answer research question four (see p. 8), a decision was made to increase the number of items to 10. The two additional items measure whether the writing contains events either prior to, or after those, depicted in the pictures (see Appendix I for revised rubric). Furthermore, Brennan states that an increase in the number of writing samples per participant usually results in a decrease in error variances and an increase in the generalizability co-efficient (1980). It was hoped, therefore, that the repeated measures design of the current study would further increase the reliability of the scale.

Time Limits. During the study, the researcher made notes of how many students were still writing at the five-minute warning, and again at the conclusion of the assignment. Typically, over half of each class finished within 15 minutes, and at the end of 20 minutes at least 90 percent of the students had finished. When students were asked if they felt they had enough time to complete the assignment, most said they did, and agreed that twenty minutes was more than adequate. Only a handful said they felt rushed to finish. When asked if they thought the five-minute warning was a distraction or help, most students indicated that they liked having the warning.

Conclusions

When used as a primary-trait scoring rubric for narrative writing samples, the scale exhibited adequate reliability. Content and construct validity were built into the development process by the use of the focus group and expert panel members with expertise in scoring writing samples using rubrics. Although the factor analysis results were not as clean as hoped for, it did provide reasonable support for the construct validity of the rubric. The decision study indicated that the addition of two more items to the scale could potentially increase reliability from .76 to .78.

NARRATIVE WRITING **Demonstrates that the student has a command of the story plot, theme, setting and can develop characters in a meaningful way. Narration tells what happened, how it happened, why it happened, and it gives the impression of movement in time.**				
Level	**Theme**	**Plot**	**Setting**	**Characterization**
0	No evidence of theme, or may not fit the story.	No evidence of plot development.	No indication of time or place.	No character development.
1	Minimal statement of theme, maybe explicit and didactic.	One or two separate events but no conflict (cause and effect).	Little indication of time and place, no relationship with other narrative elements.	One or two flat static characters.
2	Moderate statement of explicit theme, and/or minimal statement of implicit theme.	Beginning of a sequence of events with rising action but little or no evidence of conflict or resolution.	Beginning of relationship between setting and other narrative elements (eg. Fairy tale castle);	Characters more developed with use of physical descriptions and/or interaction with other characters.
3	Well-developed explicit theme. Moderate revelation of theme on implicit levels through character's actions, setting, etc.	Clear sequence of events with beginning, middle, and end. Rising action, conflict, and resolution.	Setting becomes more essential to the development of the narrative, (eg. May be integral to the plot or characters may remark about or interact with the setting). May have beginning of symbolic uses of setting (eg. Forest as a scary place).	Characters increasingly well rounded, less stereotypical descriptions, inner thought and motivations beginning to be depicted, and/or more interaction with other characters.
4	Beginning use of secondary themes often tied to the overarching theme. Main theme increasingly revealed through implicit rather than explicit means.	Plot increases in complexity with more than one episode, variety of techniques such as foreshadowing, flashbacks, denouement used to manipulate sequence.	Setting is fully integrated into the narrative. Setting may be used to convey mood, be symbolic of the conflict, serve as a metaphor.	Well-rounded characterization through the use of physical descriptions, depiction of emotions, motivations, and/or growth. Complex interactions between characters.

DESCRIPTIVE WRITING **Demonstrates that the student can create mental images, emotions, sensory stimulation, mood and tone through the careful selection of words. Descriptions provide details of location, size, color, and can include memory images.**				
Level	**Diction**	**Figurative Language**	**Sensory Language**	**Integration**
0	Improper, confusing choice of words, does not make sense.	No use of metaphor, simile, or symbolism.	No use of sensory language.	Descriptive language does not support narrative.
1	Use of words, while appropriate, is mundane and predictable.	Beginning use of metaphor, simile, or symbolism	Little use of sensory language; dominant use of "to be", (eg. The sky was blue.)	Descriptive words, figurative language, and sensory language are few in number and are not integrated throughout the narration.
2	Words more carefully selected to suit purpose.	Figurative language may be used but provides minimal supporting detail or is ineffective, inappropriate, or confusing to the reader	Sensory language is apparent through the minimal use of vivid verbs and/or adjectives, (eg. The sky shone blue).	Descriptions are two-dimensional and provide minimal support for the development of the narration.
3	Well developed control over selection of words. Creates mood and tone through the use of concrete nouns, action verbs, vivid adjectives, and/or adverbs.	Metaphor, simile, and symbolism are used to help set the mood and tone and provide moderate supporting detail	Sensory language is used to provide supporting details and to help set the mood and tone. More vivid adjectives, adverbs, and/or action verbs are used.	Descriptions are more vivid and provide moderate support for the development of the narrative structure.
4	Deliberate selection of words to create mood, tone, and/or pace of action (eg. use of alliteration or rhythm to create sense of danger).	Rich, multi-layered use of metaphor or symbolism to enrich the writing.	Sensory language is used to create mental imagery and provides ample and vivid supporting details.	Descriptive words, figurative and sensory language are well integrated into and support the narration.

EVENTS		
Level	**Prior Events**	**Subsequent Events**
0	No evidence of events occurring prior to those depicted in the picture, or use of events that have no relation to those in the picture.	No evidence of events occurring after those depicted in the picture, or use of events that have no relation to those in the picture..
1	Minimal events of non-specific nature occurring prior to those depicted in the picture, eg. "Once upon a time…".	Minimal events of non-specific nature occurring after those depicted in the picture, eg. "And they all lived happily ever after".
2	One or two events occurring prior to those depicted in the picture that minimally aid in the development of plot, setting, or motivation of characters.	One or two events occurring after those depicted in the picture that minimally aid in the development of plot, setting, or motivation of characters.
3	Story uses events occurring prior to those in the picture that moderately aid in the development of plot, setting, and/or motivation of characters in order to explain the action depicted in the picture.	Story uses events occurring after those in the picture that moderately aid in the development of plot, setting, and/or motivation of characters in order to resolve the action depicted in the picture.
4	Well-developed story, setting, and characterization that includes events, settings, and/or characters occurring prior to those in the picture, that creates a fully integrated use of the picture in the narrative.	Well-developed story, setting, and characterization that includes events, settings, and/or characters occurring after those in the picture, that creates a fully integrated use of the picture in the narrative.