METAPHORIC COMPETENCE OF LEARNING DISABLED
AND NORMALLY ACHIEVING CHILDREN

THESIS

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Fulfillment of the Requirements

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By

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Metaphoric competence of learning disabled and normally achieving fifth and seventh grade male children was investigated. Four measures were made of metaphoric abilities. The first task was a multiple choice written test to determine the rate of metaphoric preference. Part two consisted of children developing metaphors. Part three and four required explanations of the meaning of preferred metaphors and produced metaphors.

The findings for the effect of normally achieving and learning disabled children were significant. Learning disabled children had a different rate of metaphoric preference, choosing more literal comparisons. Normally achieving children produced more metaphors. Normally achieving children were more successful explaining produced and preferred metaphors. On all measures, learning disabled children were less adept.

The findings for the effects of grade level were mixed. Nonsignificant effects were found for metaphor preference by fifth and seventh grade children. Significant differences were found for metaphor production, with fifth grade children producing more metaphors. Nonsignificant effects were found for the produced metaphor explanation by fifth and seventh grade
children. Fifth grade children were more adept at explaining preferred metaphors.

It was concluded learning disabled children had less well developed metalinguistic abilities, possibly due to limited cognitive capacity. Their rate of preference, production and explanation would seem to be that of younger children. The explanations given for a lower rate of success by seventh grade children, who produced fewer metaphors and gave poorer explanations of preferred metaphors than fifth grade children were: (a) the evaluation measures were not sophisticated enough to identify more definitive factors of metaphorlc competence; and (b) the fifth grade children were more effective users of figurative language, as seventh grade children preferred literal language.
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CHAPTER I

INTRODUCTION

Learning disabilities are closely aligned with problems of language acquisition and use, as evidenced by the inclusion of language disabilities in definitions of learning disabilities. Included in definitions of learning disabilities are disorders in the acquisition and use of listening, speaking, reading, writing, reasoning, or mathematical abilities (Leigh, 1981) or psychological processes involved in understanding, speaking, thinking, reading, writing, spelling, and in mathematical calculations (Federal Register, 1977). Acquisition and use of language are clearly of paramount importance in defining learning disabilities.


Normally achieving children usually focus on the information (content) provided in written and oral
language. At times, however, their attention is drawn to specific aspects of language. They are aware that a word is incorrectly pronounced, used incorrectly, or misspelled. Errors of grammar are made in writing and speaking. A sentence is not comprehensible and several meanings can be given to a particular word or sentence. Handicapped learners, however, appear to have difficulty in noticing or accommodating such errors (Bloom 1970).

Recently, importance has been given to researching metalinguistic awareness, the capacity to attend to the components of language and speech as objects of reflection (Slobin, 1978). Attention is turned away from the message of discourse or reading to the form of language, as if a transparent structure becomes visible for inspection. This reflection of language is evident through (a) the awareness of sounds, (b) the awareness of word-meaning correspondence, (c) the awareness of rules and grammar, and (d) the awareness of ambiguity (deVilliers & deVilliers, 1978).

The study of metalinguistics, however, is not without controversy. Differences of opinion abound within the fields of linguistics, psychology, and education regarding the definition of metalinguistics (Chomsky, 1979; Flavell, 1977; Mattingly, 1972, 1979) and the degree of awareness required in the reflection process. A continuum of definitions ranges from an implicit awareness of the
components of language, as evidenced in self-correction (Flavell, 1977), to an explicit, deliberate monitoring of information, as evidenced in explication (Mattingly, 1979).

The awareness of ambiguity is a subtle metalinguistic ability, because sentences, phrases, or words can have different meanings in different contexts (de Villiers & de Villiers, 1978). These occasions are evident in the telling of jokes, puns, and riddles or in the use of metaphorical, that is, "His eloquence could split rocks," and proverbial, that is, "A penny saved is a penny earned," language. To be successful in understanding such figurative language, a person must consciously manipulate language. Metalinguistic awareness of ambiguity requires first that words are analyzed and, subsequently, "the deliberate stretching" of language to evoke new associations and images is conducted (Clark, 1978).

One facet of ambiguous language is metaphorical language. At one time, metaphors were treated as a linguistic accident and did not have a legitimate place in linguistic theory (Honeck, 1980). Metaphors were considered a form of literal decoration, to relieve the rigidity of literal language and to stimulate the imagination of the reader (Honeck, 1980). A more contemporary view of metaphor suggests that (a) more information can be conveyed through figurative language
(that is, metaphor) than literal language and (b) metaphor is an integral part of the study of linguistics (Malgady & Johnson, 1980; Gentner, 1982; Ortony, 1979a; Verbrugge, 1980).

Whether metaphors are used to explain thoughts that are not capable of being expressed with literal language, or whether metaphors are used to convey more information than can be conveyed with literal language, the production and comprehension of metaphors is believed to be a part of normal language development (Billow, 1981; Gardner, 1974; Gardner, Kircher, Winner, & Perkins, 1975; Genter, 1982; Pollio & Pollio, 1974; Winner, 1979). Young children use and understand metaphorical language and can give explanations of what metaphors mean. As the production, understanding, and appreciation of metaphors is considered to be part of normal language development, it is also important to determine if learning disabled children produce, explain, and appreciate metaphors in the same manner and rate as normally achieving children.

Problem

This study investigated the metaphorical language abilities of learning disabled and normally achieving children through the study of the production, explanation and preference of metaphors by normally achieving and learning disabled children. There are many unanswered
questions regarding the communicative abilities of learning disabled children. Do learning disabled children use metaphorical language less effectively than normally achieving children? Are they able to understand metaphorical language as effectively as normally achieving children? Does maturation affect the production and explanation of metaphorical language? Do learning disabled children have the same rate of preference for metaphors?

Purpose

The purpose of this study was to determine the metaphorical competence of learning disabled and normally achieving male children in fifth and seventh grade. Two grades provided relevant information regarding developmental patterns in metaphorical competence, with the two year span providing the opportunity to note possible differences (Gardner, 1974; Gardner, Kircher, Winner, & Perkins, 1975). At this age, the latency period of metaphor usage has passed, thus suggesting that the use of metaphor will be evident (Winner, 1979). Male children were chosen for this study, since the learning disabled population is predominantly male, with one learning disabled female to every four to six learning disabled males (Lerner, 1971).
The following areas were investigated: (a) metaphorical preference of learning disabled and normally achieving children in the fifth and seventh grade; (b) metaphorical production abilities of learning disabled and normally achieving children in fifth and seventh grade; (c) explanations of metaphor production by learning disabled and normally achieving children in fifth and seventh grade; and (d) explanations of metaphor preference by learning disabled and normally achieving children in fifth and seventh grade.

The study employed the basic paradigm and procedures used in a Harvard Project Zero study (Silberstein, Gardner, & Winner, in press). In the Harvard study, one hundred thirty-eight preschool through college students were asked their preference for metaphoric ground; that is, what type of relationship between the first and last part of a metaphor provided the most appeal and appropriateness. A multiple choice test was used to determine their preferences. The format consisted of alternative choices for the ending of metaphors (Appendix A), and the various endings reflected perceptual and conceptual relationships.

The present study extended the Harvard project into other realms of metaphorical ability. Part one of the study determined what type of metaphors are preferred by learning disabled and normally achieving children. Part
two consisted of the children producing metaphors. In part three, children gave explanations of why they appreciated and considered appropriate the metaphors they produced. In part four, the children gave explanations of the metaphors they preferred; that is, what is the relationship of the first part of the metaphor, the topic, to the last part of the metaphor, the vehicle?

Part one of the study consisted of the group administration of the metaphor preference test (MPT) that was developed and used in the Harvard study. It is a multiple choice test that was read to the students, as they followed with a copy of the test, requiring approximately thirty minutes to administer. These results were scored and used in another part of the study.

After the metaphor preference task was completed, the children were interviewed to determine their ability in producing metaphors (see Appendix D for instructions). This was accomplished by using the MPT materials, as the children were read the first part of each of the metaphors, and then were asked to provide an ending. This method of eliciting productions of metaphors has been used in several studies revealing the sequence of (a) young children producing valid metaphors, (b) early elementary children often giving a literal ending to the sentence, and (c) older children again producing effective metaphors (Billow, 1981; Gardner, 1974; Gardner, Kircher, Winner, &

Using the replies the children made in the first two parts of the study, the meaning of the metaphors they chose and the metaphors they produced was elicited (Appendix G and Appendix J). The explanations revealed the subject of the metaphor (e.g., topic) and the last part of the metaphor (e.g., vehicle) to be related. With information from these four tasks, differences of metaphoric preference, production, and explanation for learning disabled and normally achieving children were detected.

In summary, the purpose of the study was to determine the metaphoric preference, metaphoric production, and metaphoric explanation ability of learning disabled and normally achieving children in fifth and seventh grades.

Significance

Metaphors are frequently and widely used in written and oral language. Metaphors are common in day-to-day conversations, narration, exposition, poetry popular songs, and newspaper articles. Master teachers use metaphors in effective teaching, comparing known information to new information. In evaluating the writings of students, the use of metaphors is considered to be a characteristic of well-written material. Metaphors can be used to explain, describe, compare, and
analyze. Idiomatic expressions, proverbs, riddles, puns, similes, and metaphors are often used in communication and educational materials. Surveys of basal readers, social studies textbooks, children's literature, science textbooks, and other textbooks reveal metaphorical language. Basal readers contained ten instances of figurative language per one thousand words in upper elementary (e.g., fourth to sixth grades) material and two and one-half instances per one thousand words in the primary grades (Iran-Nejad, Ortony, & Rittenhouse, 1980). One chapter of a seventh grade history book had nineteen examples of figurative language. Eight of the nineteen examples conveyed the most important concepts in the chapter (Mackey, 1966). Fifth grade social studies and sixth grade science textbooks rely upon figurative language, especially metaphorical language, to present new facts and concepts (Cunningham, 1976). If metaphor usage is so common and serves so many purposes, differences in metaphor production, preference, and explanation between learning disabled children and normally achieving children could serve as a partial explanation of differences in communicative competence (Bryan, Donahue, & Pearl, 1981).

Though problems of learning disabled children have been studied from many different perspectives (Bryan, 1974; Melchenbaum & Goodman, 1971; Reid & Hresko, 1981; Swanson, 1982; Torgesen & Goldman, 1977; Wong 1980), no
research exists examining the metaphorical abilities of learning disabled children. Metaphoric language skills could affect the communicative competence of learning disabled children. Problems in reading, mathematics and other subjects appear in learning disabled children and research substantiates the import of metaphorical language in these areas. Metaphoric language requires linguistic and pragmatic abilities, areas in which learning disabled children evidence difficulties (Bloom & Lahey, 1978, Hresko, 1979; Reid & Knight-Arest, 1981; Sinclair-de-Zwart, 1973; Vellutino, 1977).

Limitations
The results of this study were limited by the following restrictions: (a) children were male; (b) they were enrolled in fifth or seventh grades; (c) they had the demographic characteristics of white, English speaking, average socioeconomic status; and (d) the results of the study were obtained in artificial, rather than naturalistic situations.

Definitions
**Ground.** The shared features of the topic and vehicle of a metaphor is termed the 'ground.' The ground must be determined by the reader, although the relationship is probably of a universal agreement. For instance, in "The rock crystals seemed alive" the salient properties of
being alive, in other words, movement and change, provide the basis of comparison between the topic and vehicle (Ortony, 1979b).

Learning disabilities. P.L. 94-142 states that the learning disabled child has normal intelligence (Average I.Q. score for learning disabled students in sample is ninety.) with "a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in imperfect ability to listen, speak, read, write, spell, or do mathematical calculations" (Federal Register, December 29, 1977, p. 65083).

Linguistics. Linguistics is the science of speech, including the origin and structure of language. The linguistic elements of a language are words and other morphemes, functioning according to a system of rules. Linguistics describe how a language works (Bloom & Lahey, 1978).

Metacognition. Metacognition is one's knowledge concerning one's cognitive processes and products or anything related to them; that is, the learning relevant properties of information or data. It consists of the active monitoring and consequent regulation and orchestration of processes in relation to the cognitive objects on which they bear (Flavell, 1977).
**Metalinguistics.** The instance of the individual having cognizance of the fact that the individual knows that he knows something about language. The awareness may be segmented into the components of sounds and words, rules of grammar, and ambiguity of words and sentences (deVilliers & deVilliers, 1978).

**Morphology.** Morphology is the study of the units of meaningful sound in a language. The form of language can be described in terms of the units of meaning, which are words or inflections (Bloom & Lahey, 1978).

**Metaphor.** A figure of speech containing an implied comparison, in which a word or phrase ordinarily and primarily used for one purpose is applied to another situation (Ortony, 1979a).

**Metaphoric explanation.** For purposes of this study, metaphoric explanation refers to the process of identifying the ground of the topic and vehicle of the preferred metaphor or produced metaphor (Gardner, Kircher, Winner, & Perkins, 1975).

**Metaphoric preference.** For purposes of this study, metaphoric preference is defined as those metaphors that children select as being more pleasing and meaningful from the choices available in the metaphor preference test (MPT) (Appendix A) (Silberstein, Gardner, & Winner, in press).
**Metaphoric production.** For purposes of this study, metaphor production refers to the act of children composing the vehicle to complete a metaphor, after the topic from the metaphor preference test is presented (Silberstein, Gardner, & Winner, in press).

**Normally achieving children.** Children are considered normally achieving if they demonstrate average or better intelligence, attend a regular elementary school, and evidence no physiological, psychological, or learning disabilities. These children are within one standard deviation of grade level in mathematics and reading (Reid & Hresko, 1981).

**Phonology.** Phonology is the study of the sound system of language. The form of language can be described in terms of the units of sound, or phonology (Bloom & Lahey, 1978).

**Pragmatics.** Pragmatics is used to refer to the study of the use of language as it occurs within a context and is expressed by real speakers and hearers in real situations (Bates, 1974).

**Schema.** Schema is an individual's knowledge system, consisting of world knowledge and generalized concepts which children and adults use to aid the process of comprehension (Rumelhart, 1979). The structure of a schema is a series of concepts and the relationship between those concepts. A schema does not necessarily contain infor-
mation about a specific case, but may contain information about what is usually or normally the case (Ortony, 1979a).

Syntax. Syntax is the study of how the units of meaning combine in a language with one another in meaningful arrangements (Bloom & Lahey, 1978).

Tension. Tension refers to the state of mind of the reader, as the incompatibility of the topic and vehicle first emerge, as the reader recognizes that the information cannot be interpreted literally. Tension is resolved as the salient features of the topic and vehicle are compared to determine which feature of the vehicle is compared to determine which feature of the vehicle can be attributed to the topic. In "His favorite classroom was the Sierra Mountains" the reader resolves the tension between the topic 'classroom' and the vehicle 'mountains' by concluding that mountains can be an environment for instruction and learning (Ortony, 1979b).

Topic. The topic of a metaphor is the subject of the metaphor and indicates what the metaphor is depicting. In the metaphor, "His notebook soon became a treasure chest," 'notebook' is the topic because it is the major concept being discussed by virtue of being the first entity of the comparison (Ortony, 1979b).

Vehicle. The vehicle of a metaphor is the second entity of comparison in a metaphor and serves to describe
or qualify the topic of the metaphor in some way. In the metaphor, "The snowflake is a gentle kiss," 'kiss' is the vehicle, the object that provides the comparison to the topic of the metaphor (Ortony, 1979a).

Hypotheses

The study of metaphoric preference encompassed the following hypotheses.

1. Learning disabled children have a different rate of metaphorical preference than normally achieving children.

2. Fifth grade children have a different rate of metaphoric preference than seventh grade children.

The study of metaphor production encompassed the following hypotheses.

3. Learning disabled children produce fewer metaphors than normally achieving children.

4. Fifth grade children produce fewer metaphors than seventh grade children.

The study of the explanation of produced metaphors encompassed the following hypotheses.

5. Learning disabled children explain the ground of preferred metaphors less accurately than normally achieving children.

6. Fifth grade children explain the ground of produced metaphors less accurately than seventh grade
children.

The study of the explanation of preferred metaphors encompassed the following hypotheses.

7. Learning disabled children explain the ground of preferred metaphors less accurately than normally achieving children.

8. Fifth grade children explain the ground of preferred metaphors less accurately than seventh grade children.
CHAPTER II

REVIEW OF LITERATURE

One goal of communication is to express facts, feelings, and ideas in an effective manner (Bloom & Lahey, 1978). On some occasions definitive and literal sentences accomplish this goal. In other instances, literal meaning would confuse the communicator's intent, as phrases, words, and sentences are intended to be comprehended in a nonliteral sense. To this end, metaphors are employed. The reader or listener selects the appropriate relationship between two events, objects, or ideas and ignores other unrelated and irrelevant aspects of the relationship (Verbrugge, 1980). For example, the sentence "The man is an elephant" does not mean that the man is literally an elephant. Each individual has a unique understanding of this sentence, but the intent is probably to emphasize the man's size or agility. The use of metaphor, based upon the individual's conceptualizations of the inferred common attributes of man and elephant, is believed to increase the style, originality, and greater understanding of the communication (Harris, Lahey, & Marasalek, 1980).
Conceptualization of Metaphor

The study of the structure of metaphor requires an analysis of the components of language, as it is generally believed that a metaphor consists of two terms that have some type of relationship between them (Black, 1962; Richards, 1926). Depending upon the familiarity of the subject, a more or less explicit analysis is needed. The subject of the metaphor is designed as the "topic" or "tenor"; the term that is being used in a nonliteral fashion is the "vehicle"; and the relationship between them is the "ground." The ground creates "tension" that results from the anomalous character of the relationship (Ortony, 1980). In the sentence "Her eyes are pearls," "eyes" is the 'topic' of the metaphor, the focus of thought and understanding; "pearls" is the 'vehicle,' the mode of describing the topic; 'ground' is the shared implied characteristics of "eyes" and "pearls"; and 'tension' occurs as the anomalous relationship of eyes and pearls becomes evident. To develop a visualization and understanding of how "Her eyes are pearls," it is necessary to conjure the possible relationships of the topic and vehicle to discover the similarity of attributes. The topic and vehicle each have attributes that are part of separately stored knowledge. In the process of identifying and comparing attributes, the
perception and understanding of each entity is altered, resulting in new relationships and interactions (Ortony, 1980). It is through this process that the anomalous relationship of the topic and vehicle is resolved and the meaning of the metaphor becomes evident.

The metaphor used above is elementary, but more complex forms exist. To facilitate the analysis of the structure of metaphors, a four part classification of the components of metaphors was developed, based on whether the topic and/or vehicle are explicitly stated (Perrine, 1971). A Form I metaphor is one in which the topic and vehicle are both stated, as in the case of "Her eyes are pearls." In Form II metaphors, the topic is evident but the vehicle is not. For example, "Sheathe thy impatience" is a Form II metaphor. A Form III metaphor has the vehicle given, but the topic is inferred. A Form III metaphor is "Night's candles are burnt out." Form IV metaphors omit both the topic and vehicle. Both must be inferred, as an entire sentence is used to portray the relationship. "Let us eat and drink, for tomorrow we shall die" from Isaiah 22:13, is an example of an entire sentence used as a Form IV metaphor that serves to depict the importance of appreciating life. This sentence also has a literal meaning that would be appropriate in some contexts, and the decision to interpret the sentence literally or nonliterally will depend upon the context of
the communication (Ortony, 1980).

Another distinction is that some metaphors are accepted as an integral part of language and may not be recognized as a metaphor, as they are so often used. For instance, phrases such as, "head of state", "foot of the bed", "the White House said", and "the leg of the triangle", are examples of "frozen" metaphors (Breal, 1964). Phrases such as these began as "novel" or original metaphors, but were integrated into the language patterns of a society through consistent use until the meaning of the phrase is universally accepted. Most metaphors, however, are "novel" metaphors, created by an individual to serve a specific purpose of communication (Breal, 1964).

The structure of metaphors can be analyzed through the previously described classifications, but the function that metaphor serves in the language of a society is contingent upon a theoretical view. Theoretical views range from one of a metaphor serving as a substitute for a literal meaning, to the view that particular meanings and understanding are only available through the use of metaphoric language. Generally speaking, the theoretical views of metaphor are not mutually exclusive, but compliment each other. The four views that will be discussed are (a) the substitution view, (b) the comparison view, (c) the interaction view, and (d) the
contextual view.

Substitution View

Metaphors have been considered by some linguists as a kind of error in thought and reasoning (Verbrugge, 1980), that is, they interfere with the meaning of a sentence, because the sentence cannot be comprehended literally. Metaphors mean something different than what they actually say; that is, an intruding thought must be substituted for the literal thought (Black, 1962). For example, to understand the sentence, "Highways are snakes", a literal interpretation of the sentence must be rejected, as highways are obviously not snakes. After rejecting the literal perspective because of semantic information, a substitution of concepts is required. The common attributes of a snake would probably come to mind and would be attributed to highways. While the substitution view of metaphors is simplistic and is considered appropriate for high frequency associations, it is limiting in that it does not consider metaphor as an integral part of a linguistic system (Verbrugge, 1980).

Comparison View

The comparison view of metaphor is the most accepted view of metaphor (Barlow, Kerlin, & Pollio, 1971; Perrine, 1971; Ortony, 1980). From the time of Aristotle, it is generally believed that a metaphor consists of a
comparison between incompatible objects, based on the form of analogies, proportions, or similies (Barlow, Kerlin, & Pollio, 1971; Verbrugge, 1980, Haynes, 1975; Shible, 1971). Instead of saying, "Her eyes are pearls," one could say, "Her eyes are like pearls." In either case, the attributes of the topic are compared to those of the vehicle in order to comprehend the meaning of the relationship.

Metaphor is also considered as an implicit oxymoron (Campbell, 1975). An oxymoron is the connecting of two concepts that have opposite meanings, such as, "the soft harshness of words" (Ortony, Reynolds, & Arter, 1978). Although many metaphors do not contain such extreme relationships, the dissonance exhibited by the ground of the topic and vehicle suggests that metaphor can still be considered as oxymorons. Because of the unique and specific relationship of the topic and vehicle, a metaphor is difficult to paraphrase, but exhibits linguistic power in the variety of possible meanings that the individual can choose.

**Interaction View**

While metaphors can be substitutes for literal statements or serve as a comparison between objects, there is a perspective of metaphor that suggests when the topic and vehicle are united in thought, new meanings for both
objects are created (Black, 1962; Haynes, 1975; Richards, 1926). "Placing known characteristics of Y against Z, an irreducible synthesis by juxtaposition which is difficult to reduce to a simile or literal language...the metaphor creates the similarity, rather than the similarity previously existing" (Haynes, 1975, p. 272).

The interactive approach to metaphor depicts an interplay between the topic and vehicle, with selecting or suppressing features of the topic through emphasizing features of the vehicle (Black, 1962). It is useful to think of the topic and vehicle as a "system", rather than specific words. "The metaphor selects, emphasizes, suppresses, and organizes features of the principal subject (topic) by implying statements about it that normally apply to the subsidiary subject (vehicle)" (Black, 1962, p. 44). Thus, the critical feature of the interaction view of metaphor is that it is necessary for the individual to make inferences about the relationship of the topic and vehicle, rather than just projecting substitutions or comparisons.

As the interaction view of metaphor portrays metaphor in a functional sense, rather than in a grammatical sense, it is not possible to view metaphors as being similes, unless the words, "like" or "as", are used. For example, "The sun going down behind the hill is like a nickel in a parking meter" is a comparison in the form of a simile.
The same comparison in the form of a metaphor would be, "The sun going down behind the hill is a nickel in a parking meter." It is, instead, proposed that there is an understanding made evident in a discovery mode. The comprehension of the metaphor has the quality of "eureka" or "surprise", when the person discovers the inferred meaning from the unusually strong tension that is evident (Ortony, Reynolds, & Arter, 1978). "A red rose is a prelude by Chopin" has a greater meaning than the comparison or substitution view of metaphor provides.

**Contextual View**

The previous views of metaphor are based upon the premise that the dissonance between the topic and vehicle is the result of semantic anomaly (Ortony, 1979b). Analysis of any number of metaphors, however, reveals that many metaphoric sentences are semantically correct. The anomaly occurs in another fashion, that is, through a contextually anomalous sentence. For example, "Regardless of the danger, the troops marched on" is semantically correct. When the sentence is placed in the following context, it is considered to be an example of a Form IV metaphor (Ortony, Reynolds, & Arter, 1978).

The children had been annoying their teacher all morning, and she was becoming increasingly irritated by their behavior. She simply did not know how to stop their climbing on the chairs and tables, and throwing all manner of objects about the room. She decided
to threaten to punish every one of them if they did not stop. As loudly as she could, she shouted her warning. She would make them all stand outside in the rain. Regardless of the danger, the troops marched on. (Ortony, Reynolds, & Arter, 1978, p. 45).

In the context of the story, the entire sentence given above is a metaphor. It cannot be comprehended in a literal fashion and there are no words or phrases in the sentence to suggest a comparison of a topic and vehicle. But analysis of the context of the story reveals the ground of the implied topic and vehicle, making the sentence understandable. While semantic and contextual anomaly are not specifically addressed in the description of the four forms of metaphor, it is evident that the two situations exist in the various views of metaphor (Reddy, 1980; Perrine, 1971; Ortony, 1980; Verbrugge, 1980).

**Summary**

The various views of metaphor serve to emphasize the importance of metaphors in the communication process. The oldest and most elementary view says that an intruding thought must be substituted for a literal thought to understand a metaphor. The comparison view of metaphors portrays metaphors as being a comparison between two incompatible objects, possibly as a form of oxymorons. A more contemporary interpretation of metaphor emphasizes the role of inference in the comprehension of metaphors. The interaction view says an inference is made about the
subject of the metaphor through the vehicle of the metaphor. The most sophisticated view of metaphor emphasizes the importance of the context in the interpretation of the metaphor. A case of a contextually based metaphor is one of a semantically correct sentence that is metaphorically interpreted through the information surrounding the sentence.

The important fact of the various perspectives of the role of metaphor in a language system is the relevance of all the views. The research does not negate the relevance of any of the views, and the accumulation of information about metaphors emphasizes the impact on communication by metaphors.

Metaphoric Production

Metaphoric production begins early in the language development of children (Billow, 1981; Gardner, 1974; Gardner, Kircher, Winner, & Perkins, 1975; Genter, 1977; Kogan, Connor, Gross, & Fava, 1980; Pollio & Pollio, 1974; Winner, 1979). A child, twenty-seven months old, stuck his foot in a wastebasket and laughingly called the wastebasket a "boot", even though he could correctly identify the wastebasket (Winner, 1979). Children often overextend the meaning of a word, incorrectly attributing it to an object or event, as when a child calls all animals which have four legs and are furry a "doggie"
(Winner, 1979). Children are also known to identify objects and functions with inaccurate or inappropriate terms, because the correct word is not known to them (Billow, 1981). Procedures to distinguish the differences between the metaphoric production, anomalous production, and overextensions of language of young children clarify the question of the place of metaphoric language of young children.

Anomalies were identified through the determination that the ground of the utterances was not apparent to adults. For instance, a briefcase was called "spaghetti" (Winner, 1979). For an utterance to be considered metaphoric rather than an overextension, the following criteria was used: (a) the literal name of the object was known; that is, a string was renamed a "tail" of the kite and string was known; (b) a familiar object was transformed and renamed with some kind of action or gesture; that is, a wastebasket was renamed "shoe"; (c) the renamed object was given attributes appropriate for other things; that is, calling two irons "mommy and boy fishes"; (d) or the relationship was expressed as a simile; that is, "this (letter) looks like a cane." (Winner, 1979). If the language sample could not meet any of these criteria, the utterance was considered to be an overextension.
The samples of metaphors were then classified into three types, according to the type of action accompanying the metaphoric language. An example of a pretend action metaphor is pretending to be eating a pencil and calling it "corn". A non-pretend action metaphor is when "putting on your clothes" was said to a crayon as the paper cover of the crayon was replaced. An example of a non-action metaphor is when a red balloon tied to a green tube was described as "de apple on de tree" (Winner, 1979).

For age two, the type of metaphor most used was pretend action, with non-pretend action the most rarely used. For age three, non-action metaphors were most commonly used, with non-pretend action most rarely used. For age four, the non-action metaphors were also the most commonly used, with the pretend action metaphor most rarely used. Anomalies were prevalent the second year; overextensions were prevalent the second and third years; and both patterns noticeably lessening the fourth year. The form of metaphor using "like" was rarely used, but was used in an increasing rate. "A sensitivity to the need of the listener as well as the metalinguistic awareness that language is being used in a somewhat special way" characterizes the use of metaphors (Winner, 1979, p. 488).

Metaphoric production of children, thirty-one months old to eight years, was analyzed (Billow, 1981). Metaphoric production increased with age, until the sixth
When the samples of language of subjects, ages three to nineteen, were examined in a controlled study to elicit metaphoric production, the preschoolers and college students produced the most metaphors (Gardner, Kircher, Winner, & Perkins, 1975). The elementary aged children seemed to prefer more literal and conventional descriptions, although they did use some metaphoric language, but to a lesser degree than the preschooler and college student. These findings suggest that there is perhaps a nonlinear relationship of age and metaphoric production.

A referential communication paradigm, with an adult serving in a receptive role was utilized to determine the metaphorical production of four, five, and seven year old children (Foorman, 1979). It was believed that the students would describe the pictures in either an analytic fashion, that is, a literal fashion, or metaphorical language would be used. Either literally or figuratively, the student would attempt to describe the picture through the identification of parts of the picture, or through attempting to describe the picture as a whole. When describing the picture, the adult would feign confusion to elicit additional information from the student. The analysis of the results revealed that few metaphoric productions were made for the pictures. Fifteen per cent of the descriptions were metaphoric for the four year old
children, who were primed, and nine per cent for the nonprimed group; seven per cent of the production of metaphoric language was small, but the information that was provided through metaphoric productions was considered informative.

Children in the fourth, sixth, and eighth grades were presented with stimuli to evoke metaphoric language (Gambell, 1977). It was determined that abstract, complex, and unfamiliar stimuli were more effective in evoking metaphoric language. Likewise, a descriptive task evoked a greater quality and quantity of simile responses. There was no significant difference between grades in spontaneous metaphoric production, but the older children were superior in evoked metaphoric production.

Another group of children, thirty-one months to six years, was asked to explain what they meant after spontaneous metaphors were determined to be part of their language (Billow, 1981). Metaphoric speech was found at all age levels, and even the very youngest child could offer some explanation of what they meant by the metaphor. Metaphors reflected the immediate and present activities and were generally some form of simile. In their explanations the term "like" was used often to explain the meaning of the metaphor. A child said that hair was "like" grass, but an ear wasn't, as hair felt like grass, but an ear didn't (Billow, 1981). The older children
produced fewer metaphors than the younger subjects. One explanation given for this was greater facility with language made metaphoric productions unnecessary. Another explanation for the decrease in metaphor usage is that there is a satiation of pleasure in the making of metaphors.

Written samples of metaphor production were obtained from third to sixth graders (Pollio & Pollio, 1974; Sweet, 1974). Compositions of imaginative topics, comparisons between sets of words, and sentences of double function words were analyzed. It was determined that more frozen than novel metaphors were used in the compositions and the proportion of metaphors to literal language decreased as the children were older. The double function sentences evoked more frozen than novel metaphors, with a higher level of metaphor production than in the compositions. When the students made comparisons between sets of words, more novel than frozen metaphors were used, with an increase in number for each succeeding grade. There appeared to be an interaction between the type of activity and the type of metaphor utilized. It was concluded that oral production might produce a more accurate measure of a child's metaphoric usage (Pollio & Pollio, 1974).

There are strong objections made to the presumption of spontaneous metaphoric production by young children (Chukovsky, 1968; Ervin & Foster, 1960; Matter & Davis,
1975, Piaget, 1955). It is thought that a faulty or immature understanding of semantic or grammatical structures spawns metaphors and metaphor is, therefore, not an integral part of a language system.

In the early stages of language acquisition children produce categorical errors and mistakes that can be taken as metaphorical expression, but are not. The child is in the process of learning to recognize and correct perceptual, cognitive, and conceptual 'error'. As these 'errors' are corrected, children develop a highly literal linguistic behavior. In this intermediate stage, children are getting categories straight. Following the literal stage, children again enter the world of category mistakes intentionally. They discover metaphor. (Matter & Davis, 1975, p. 75)

Piaget came to the conclusion that early metaphors were the result of inadequately formed classification schemas. He thought his daughter displayed confusion when she compared the ridges of sand to combed hair (Piaget, 1955). The data of the empirical studies does not support a view of inadequate metaphorical development, but does support the view that "the child evidences impressive nascent metalinguistic understanding and competence in verbalizing such understanding" (Billow, 1981, p. 443).

Summary

The research substantiates that preschool children can create metaphors, as it appears that young children and adults are the most prolific users of metaphors. Critics of this finding are concerned that there are
differences between adult and child metaphor production. It would seem that there are no more differences in the production of metaphor than in the way that differences occur in other language activities.

Comprehension of Metaphors

An early study explored the ability of children, three through twelve years, to use a series of words in both a literal fashion and a psychological fashion (Asch & Nerlove, 1960). Eight words, that is, sweet, hard, cold, soft, bright, deep, warm, and crooked, were presented. The children were asked to use each word in a sentence to determine if the literal meaning was evident to the child. Then it was asked if the word could be used to describe a person. If the child agreed to this, a description was requested for "a sweet person". Then the similarity between a "sweet" person and something else sweet was explored. Through this procedure, it was determined that children first master the literal use of terms. The psychological sense is acquired at a later time, with little understanding of the relationship between the literal and psychological meaning occurring. The dual property of the terms was not spontaneously recognized by any of the children. Since none of the subjects were successful, it was determined that the ability to produce and comprehend metaphor did not develop until adolescence.
The Asch and Nerlove study is criticized on several important factors (Ortony, Reynolds, & Arter, 1978; Pollio, Barlow, Fine, & Pollio, 1977). Older children had greater knowledge of vocabulary and experience with communication and the test rated these abilities, rather than metaphorical ability. Furthermore, the problem of depending upon a child's ability to explain his thoughts would further confuse the results of the study. The most serious problem with this study and other studies of similar design, is the problem of requiring explicit metalinguistic abilities to verify a linguistic or cognitive ability. The inability to explain vocabulary usage cannot be construed to mean lack of understanding (Ortony, Reynolds, & Arter, 1978).

Another study of adjectives followed a slightly different procedure, attempting to determine if children, ages three and one-half to nineteen, could define the set of antonyms and relate them to another set of adjectives (Gardner, 1974). For example the children were asked to define such words as cold, hot, blue and red, and then relate the pairs to each other. Questions such as, "Which color is warm?" or "Which color is cold?" were used, and then the answers had to be explained. Of twenty-five responses, the preschoolers gave only 8.91 per cent incorrect answers, with the older children improving in accuracy. The improvement of scores was believed due to
the increasing knowledge of physical laws, societal expectations, and greater linguistic skill. The results are closely aligned with developmental experiences suggesting the study is measuring something other than metaphoric manipulation (Ortony, Reynolds, & Arter, 1978).

Based upon developmental research, a child would have an explanation of metaphors that would vary from age to age (Gardner & Winner, 1978; Winner, Rosenstiehl, & Gardner, 1976; Winner, 1979). An attempt was made to determine if metaphoric understanding had multiple levels, consistent with other developmental characteristics (Winner, Rosenstiehl, & Gardner, 1976). At the first level, if the child were asked to explain what was meant by the sentence "The man is an elephant", he would agree that the man is an elephant and the reason given for this fact would have some magical explanation. The second level is characterized by the child suggesting that man and elephant share some association, ignoring the grammatical inconsistencies. The third level is an approximation of a primitive comprehension of metaphor; that is, the child might project some similarity of characteristics of the man and elephant. The fourth level is presumed to be a level of comprehension of the adult. In order to validate these assumptions, six to fourteen year old children were read metaphoric sentences and then asked to explain the answers. The second step of the
study involved a completion task. When given four possible choices, the child selected the most appropriate completion for the metaphor.

The results of the study substantiated that four levels of metaphor comprehension were evident. The younger children relied upon a magical explanation; the six, seven, and eight year old children gave explanations of association and primitive comprehension; and the ten, twelve, and fourteen year old children often gave genuine metaphoric explanations. The possibility that younger children are exposed to stories with magical qualities may explain the choices of the younger subjects (Ortony, Reynolds, & Arter, 1978). Another suggestion is that the sentences were presented in isolation, resulting in no additional context to provide additional information, making the task exceedingly difficult (Pollio, Barlow, Fine, & Pollio, 1977).

These results are consistent with previous findings that explored the comprehension of metaphoric sentences through the selection from four possible selections, with an explanation given for the choice (Winner, 1979). No differences were found in the comprehension of frozen and novel metaphors, possibly due to the conservative choices of metaphors. Children were able to successfully select appropriate answers but were unable to give adequate explanations. Another study found that children could
comprehend more frozen than novel metaphors (Pollio, Barlow, Fine, & Pollio, 1977). Problems occur when children are given choices, with judgments made on the adequacy of the response. In both cases, it was evident that children could first produce metaphors; the ability to comprehend metaphors came next; and finally, the ability to explain the meaning of metaphors came last (Winner, 1979).

In a task considered to be quite difficult by adults with fully developed metalinguistic abilities (Ortony, Reynolds & Arter, 1978), five, seven, nine, and eleven year old children were asked to explain the meaning of metaphors based on similies or proportions (Billow, 1981). It was hypothesized that the classificatory activity of children would be evident in the comprehension of metaphors; that is, metaphors based upon similarity would require formal operational thought. The results showed that five year old children could solve similarity metaphors, even though concrete operations were not yet achieved. Seven year old children, at the concrete operational level, also solved similarity metaphors, and the older students were successful in both similarity and proportional metaphor comprehension. Additionally, the older students were given proverbs to explain, since proverbs require a higher level of ability than metaphors. The proverbs were extremely difficult to comprehend even
for an adult, as they contained complicated syntactic construction, unfamiliar words, and high levels of physical and cultural knowledge (Ortony, Reynolds, & Arter, 1978). The difficulty level of the proverbs and the omission of the proportional metaphors for the younger students made the generalization of the results limited (Pollio, Barlow, Fine, & Pollio, 1977).

When children have difficulty comprehending metaphors, it is generally believed the difficulty lies in the inability to identify the ground of the topic and vehicle (Winner, Rosensteil, & Gardner, 1976). In order to further study this concern, children, aged six, seven, and nine years, were asked to explain information presented in five alternative figurative modes, the topic and vehicle both explicitly stated, topicless metaphors, similies, analogies, and riddles (Winner, Rosensteil, & Gardner, 1976). The content of each of these forms addressed the same area. The explanations given for explicit topic and vehicle metaphors were judged to be the most difficult to express. Revising the metaphor into a simile through adding the word, "like," did not make the task easier. Changing the metaphor into a riddle made the task easier for the children. In order to demonstrate comprehension of the topic and vehicle metaphor, verbally describing the shared ground served to demonstrate knowledge; identifying the missing topic served as
evidence of comprehension for Type III metaphors.

Contrary to previous research findings, the children did not resort to magical or metonymic explanations of metaphors. The researchers believed this was due to the imagery available in the particular metaphors they used and that preschool age children would have resorted to a lower level of explanation. Sentences such as, "Richard is a magician," that can be interpreted literally, are believed to be more difficult to be understood metaphorically. It was further suggested that a multiple choice format more appropriately measures a tacit level of understanding, due to the discrepancy of findings involving verbal explanations and multiple choice items (Winner, Engel, & Gardner, 1980).

While the subjects of this study were not children, the findings are relevant to developmental research, in that an attempt was made to determine if the time required to comprehend metaphors and idiomatic language is longer than the time to comprehend literal language (Ortony, Schalert, Reynolds, & Antos, 1978). If it takes longer to comprehend figurative language, the pragmatic view of metaphoric comprehension would reveal validity (Grice, 1975; Searle, 1969). A pragmatic view of comprehension suggests that there are three steps to metaphoric comprehension: (a) the literal meaning of the utterance is first determined; (b) then the meaning is checked
against the context; and (c) if a conflict of information is evident, it is reinterpreted and (d) a figurative meaning is generated (Clark & Lucy, 1975).

The first experiment measured the length of time used by subjects to indicate comprehension for items, with varying amounts of context provided. When there was little information given, the metaphoric sentences took longer to comprehend; but when greater context was given, no differences were found for metaphorical and literal items. In the second experiment, when idiomatic and literal interpretations were used, idiomatic information was comprehended faster than literal information. It was concluded that essentially the same processes were used for figurative and literal language and the amount of context determined time needed for comprehension (Ortony, Schalert, Reynolds, & Antos, 1978).

As part of the National Assessment of Educational Progress, items covering the comprehension of metaphor were administered to nine, thirteen, and seventeen year olds. The metaphors were contextually embedded, with a multiple choice format. Forty-five per cent of the nine year old children were able to understand the metaphors, with equivalent increases beyond that for the thirteen and seventeen year old children and adults (Grindstaff & Muller, 1975). Young children in kindergarten, first, third, fourth, and eighth grades were asked to interpret
metaphors that adults commonly use (e.g., frozen metaphors). It was determined that the more common the usage of the metaphors in adult life, the easier it was for the children to explain (Cometa & Eson, 1978).

Children, seven to twelve years old, read short stories, choosing the final sentence from similes or literal, anomalous, or metaphoric sentences. Children chose the simile more often, when it was the correct choice. They were less successful with metaphors, even when the metaphor was semantically equivalent to the simile. The most easily understood metaphors were those that stated the topic and the vehicle. The child's ability to understand metaphoric language is influenced by general language performance variables. The type of metaphor determines the degree of difficulty (Reynolds & Ortony, 1980).

Summary

In other aspects of language development, there are expected differences in the comprehension abilities of children and adults. This difference is also evident in metaphorical comprehension, although complicated by the wide variety of procedures used in the research. But, the most contaminating factor in research is the dependent measure used in the study. There appears to be measures that span that continuum of metalinguistic abilities, with
the possibility that metalinguistic abilities are being measured, not metaphoric abilities.

Metaphor Preference

Only one study has investigated the type of metaphor that is preferred (Silberstein, Gardner, & Winner, in press). Preference is defined by the type of ground that forms the relationship between the topic and vehicle of the metaphor. For example, the metaphor, "Autumn leaves are glowing sunsets" is a metaphor based on the perceptual ground of color, the thing that the topic and vehicle seem to have most in common. One hundred thirty-eight subjects, from preschool to college, participated in the study. Their preference was determined through the use of a multiple choice test in which the topic of the metaphor and five choices for the vehicle of the metaphor was given. Expert judges determined the most salient ground of each metaphor option, with the perceptual grounds of shape, color, sound, and movement identified. Additionally, there were choices which were a combination of perceptual grounds and some choices that were conceptually related. Literal comparisons were also included, with all the choices randomly selected for each item of the test.

Test results were reported by grade level, with analysis made to determine the most preferred ground for
each age. The results, calculated with several 2 X 8 (sex X age) analyses of variance with the number of times each kind of completion was chosen as a first choice and as first and second choices summed. In addition, the percentage of choices for each type of ground by age was calculated. Striking age trends became evident. The static ground of color and shape preferred by the younger subjects shifted to the perceptual grounds of movement and sound, shifting again to conceptual grounds. At all ages, the most preferred ground was a combination of several perceptual grounds. Literal completions declined with age, with the exception of a resurge of interest in the eighth and tenth grades.

Judges determined what would be the most salient ground for each item. Results showed that age is significant, with first and third graders choosing fewer salient grounds than fifth and sixth graders. The results for the younger children must be viewed with caution. Examination of the test revealed a vocabulary with a reading level of fifth grade. The fact that the test was read to the younger subjects would not completely neutralize the effects of a fairly difficult vocabulary.

The younger children were asked to explain their answers orally and the older children wrote their explanations. They were asked to tell why they chose the particular combination of topic and vehicle and, in doing
this, the communality of the ground became evident. It was the explication of the ground that was judged. The youngest children had difficulty explaining conceptual metaphors; that is, they might prefer a conceptual metaphor, according to the choice made on the test, but they could not explain why they liked it. By fifth grade, children were able to explain perceptual and conceptual metaphors and the trend continued with the older students.

It was hypothesized that there would be a trend from the more subtle type of metaphor to the obvious type of metaphor. This hypothesis was substantiated and was consistent with the finding that children will spontaneously produce metaphors based upon the static perceptual grounds of shape and color (Winner, McCarthy, Kleinman, & Gardner, 1979). This trend is also consistent with color being preferred as classification criteria in developmental activities (Bruner, Oliver, & Greenfield, 1966; Piaget, 1955; Gallagher & Reid, 1981). Combination grounds were consistently appealing for all ages, suggesting that more schemas were activated and more associations could be made.

School children are under pressure to provide more information about whatever topic is under discussion. Teachers constantly ask them to explain and expand their thoughts. It is possible that the explanations made concerning the grounds of the preferred metaphors reflect
this practice, as students in the eighth and tenth grade returned to literal comparisons, with the comments made that there was a need to convey the most information possible about a subject. As a topic's most salient trait might be seen as its most relevant property, there could be a tendency to emphasize the aspect of the comparison. Younger school children produced literal, rather than metaphorical completions (Gardner, Kircher, Winner, & Perkins, 1975). But in the preference test, the trend was not evident; instead, the emphasis for literal choices was in older students. One possible reason for this trend is that preference and production of metaphors is quite susceptible to the effects of training and the exposure to this type of training by a teacher can occur at any time and will have an effect until children have matured into independent thinkers.

The ability to explain various types of metaphors occurs before children begin to show a preference for this type of metaphor. Fifth grade students could explain conceptual metaphors but the preference for conceptual metaphors did not become evident until after the tenth grade. Preschoolers could explain the color grounds, but did not indicate a preference for them until the early grades. It has been concluded that appreciation, that is, preference and comprehension are not coincidental; but, instead, comprehension appears to be a precursor to
preference. Children rarely chose grounds that they could not explain. This was proportionately true for the younger children and the older children. This and the other information is cautiously reported. It would seem that more appropriate statistical treatment would have accounted for more error variance. It would seem that the variables of preference and explication are highly correlated, and that more provision would have been made to control this factor.

Summary

The research that was described is the only known developmental research that considers the type of metaphor that children and adults found meaningful. The fifth grade vocabulary level would seem to make the task difficult for younger children, as many of the words could possibly have been unknown to them. The interesting finding was that all ages liked metaphors, even though not all ages were able to explain why they found them meaningful.

Language Acquisition and Development of Learning Disabled Children

The public view of learning disabled children is one of lively, attractive, well adjusted, conscientious children having difficulty learning to read. The lament is often heard that if the problems of learning to read
were solved, learning disabled children would be as successful as their peers. What is becoming evident, however, is that learning disabled children experience difficulty with most aspects of language acquisition and usage in general, not just reading. Language problems of learning disabled children include limited vocabulary (Wiig & Semel, 1975), deficiencies in the formulation and modification of sentences (Hresko, 1979), problems in the ability to express oneself concisely (Bryan, 1974), limited ability to communicate thoughts and ideas accurately (Reid & Hresko, 1981; Hresko, Rosenberg, & Buchanan, 1978), and ineffectiveness in comprehending the perspective of others (Gottman, Gonso, & Rasmussen, 1975). Further, their basic knowledge of morphological and phonological rules is limited (Hresko, 1979).

The intensity and breadth of the language problems of learning disabled children is clarified when the psycholinguistic view of language acquisition portrays language as a code for communication (Bloom & Lahey, 1978). Language develops through the child's processing of linguistic information (Bever, 1970). It is utilized in an interactive setting between and among people (Halliday, 1975). An important aspect of this psycholinguistic perspective is that language is not learned through direct instruction. Instead, the lexicon and rules that govern the use of language are gradually
assimilated, with learning occurring through the process of hypotheses testing (Reid & Hresko, 1981). The acquisition of language is believed to be developed through the same organizing and structuring activities that facilitate cognitive development. These activities are active, and contingent upon the social constraints of the environment. Interactions formed with people, activities, and materials eventually result in the construction of a linguistic code. The code is refined as the children learn to express themselves in such a way that their intentions become clear to others.

The acquisition of language follows a sequence that does not significantly vary in different environments (Bloom & Lahey, 1978). Language structures appear in most children in a given sequence (Bloom, 1970; Bloom, Lightbown, & Hood, 1975; Brown, 1973). Not only does the language development of children appear to be acquired in the same sequence across different cultures, it also appears to be acquired in the same way whether the child develops normally, is mentally retarded, or has a learning disability. "There is no evidence whatsoever to suggest that the child classified as learning disabled acquires language in a different way" (Reid & Hresko, 1981, p. 217). The differences between the language abilities of learning disabled children and normally achieving students appear to focus on a slower (i.e., delayed) rate of
acquisition (Semel & Wilg, 1975; Thypin, 1980). Differences in oral language functioning are often so subtle that some classroom teachers cannot detect them (Bloom & Lahey, 1978; Wilg & Semel, 1975).

Some significant differences, however, that do affect the ability of learning disabled children to communicate effectively have been identified. Learning disabled children demonstrated (a) syntactical problems (Hresko, 1979; Hresko, Rosenberg, & Buchanan, 1978; Wilg & Semel, 1975) and (b) semantic problems (Bryan, 1974; Hresko, 1979; Reid & Knight-Arest, 1981; Wilg & Semel, 1975). A pattern of deviant language usage has been identified in studies of children's immature language. The rules of grammar for modifying or repeating sentences were not followed (Menyuk, 1964); unusual syntactic structures were also noticed (Lee, 1974); and in a related analysis, a less "creative" use of language was noted (Morehead & Ingram, 1973).

Differences have been found in the ability to handle the form and structure of words, that is, morphology (Hresko, Rosenberg, & Buchanan, 1977; Wilg, Semel & Crouse, 1973). Learning disabled children are more apt to produce an ungrammatical sentence or incomplete sentence, which displays difficulty with morphological rule acquisition and development (Hresko, Rosenberg, & Buchanan, 1977; Wilg & Semel, 1975). A related study of
dyslexic boys determined a similar lack of knowledge of morphological rules (Vogel, 1974).

The ability to obtain information from words and word groups is an area that poses problems for learning disabled children. Semantic elements of the sentence were often altered or omitted, suggesting that the meaning of words were unclear or their personal vocabularies were limited and concrete (Hresko, 1979). When asked to define words that were part of their speaking vocabulary, learning disabled children were unable to perform the task (German, 1979). While not evident in analyzing noun knowledge and usage, vocabulary knowledge and usage is lower (Wilg & Semel, 1976), and is evident in the lack of facility with adjectives, verbs, and adverbs (Hresko, Rosenberg, & Buchanan, 1977). With limited and more concrete vocabularies, learning disabled children lack a richness of words and language becomes a less effective tool.

Summary

Learning disabled children have difficulties in the acquisition and development of language. Research has shown difficulties in vocabulary limitations, sentence formulation, expressing thoughts, learning morphological and phonological rules, and comprehending the language formulations of other persons. It appears that learning
disabled children acquire language in the same way as normally achieving children, and the rate of acquisition is at a slower rate.

Communicative Competence of Learning Disabled Students

The analysis of language elicited in a structured environment has revealed problems in the use of linguistic components. When analysis of language is conducted in natural settings, verbal facility is measured by the ability of another person to comprehend and react to what is said. The analysis of the conversations is broken into pragmatic components, clarifying the conciseness of expression, the accuracy of information, appropriate vocabulary usage, and nonverbal communication. These facets of verbal facility are considered important for effective communication (Halliday, 1975).

Other aspects of language usage were also difficult for learning disabled children. Learning disabled children have problems with producing concise expressions (Bryan, 1974; Reid & Knight-Arest, 1981; Spekman, 1981; Wiig & Semel, 1976). When asked to name opposites, define words, and formulate sentences, learning disabled children made frequent use of filler words, overuse of articles, nouns, adjectives, and prepositions (Wiig & Semel, 1976). Their speech showed many repetitions, pauses, and disorganization, when attempting to relate ideas. Though
the quantity of speech is sufficient, there are significant difficulties in expressing information clearly (Bryan, 1974; Knight-Arest, 1981).

One explanation for the difficulty a listener has comprehending the speech of learning disabled children is the learning disabled children's failure to express themselves in a grammatical fashion. For instance, pronouns are used but the antecedent noun is not identified (Reid & Knight-Arest, 1981). Using 'it', 'that', and 'this,' without establishing the antecedent requires many questions for clarification.

Another problem of expression for learning disabled children is noticed in attempts to clarify information (Bryan & Pflaum, 1978; Spekman, 1981). Fourth and fifth grade learning disabled and normally achieving children were asked to teach a game to younger children and classmates (Bryan & Pflaum, 1978). The normally achieving children modified directions for the younger child, but the learning disabled children made inadequate language adjustments and presented information in similar fashion for both ages. When asked to describe a pattern of blocks, learning disabled children also presented irrelevant information and contradicted themselves (Spekman, 1981). Learning disabled children have difficulties in the communication process when concrete, specific information is necessary.
In a related study of second and fourth grade children in an interviewing situation, learning disabled and normally achieving children served both as initiator and responder (Bryan, Donahue, Pearl, & Strum, 1981). Learning disabled children asked questions merely requiring an affirmative or negative reply and displayed a lack of facility in both roles. When asked questions, responses were brief, with minimal elaboration. Learning disabled children were cooperative, but ineffective.

The effects of a limited, inadequate vocabulary were evident, when examining communication efforts of learning disabled children. There was an overreliance upon the use of verbal fillers, such as 'um' and 'ah', indicating a lack of sufficient words to explain thoughts. Another possible explanation was learning disabled children required more processing time to organize their verbal productions. A four year lag of vocabulary knowledge, however, was found for twelve year old learning disabled children (Wilg, Semel, & Abele, 1981).

Social relationships may suffer if a person cannot analyze subtle nonverbal information cues. Nonverbal communication has been defined as including facial expressions, posture, positions, and various movements of individual parts of the body (Mehrabian, 1972). As with other aspects of communication, learning disabled children had difficulties in comprehending the more commonly
recognized emotional responses of anger, embarrassment, fear, frustration, joy, and love (Wiig & Harris, 1974). This finding suggests that learning disabled children were less successful in identifying facial expressions (Emery, 1975).

One study attempted to determine if learning disabled children responded to various types of expressions of nonunderstanding by adults (Pearl, Donahue, & Bryan, 1979). Children were asked to describe an object so that an adult could select the correct object from a group. The adult was instructed to express confusion verbally and with facial expressions before requesting additional information in either an implicit or explicit manner. First grade learning disabled children responded to explicit and implicit verbal requests but learning disabled children were in seventh and eighth grade before they responded as appropriately to both facial expressions of confusion and verbal requests for more information (Pearl, Donahue, & Bryan, 1979).

**Summary**

Learning disabled children have difficulties with the pragmatic components of communication. Difficulty with concise and accurate information, inadequate vocabulary, and nonverbal comprehension posed problems for learning disabled children when speaking with peers and adults.
Problems with asking questions, responding to questions and interpreting nonverbal information are also cited. The lack of ability in communication is camouflaged so well by learning disabled children that many teachers had difficulty in detecting specific language problems.

Learning Disabilities and Ambiguity

At school and home, children are expected to communicate with adults and other children in such a way that the encounter is productive and enjoyable. Difficulties can occur when statements are made that are difficult to understand. The information may be incomplete, confusing, unclear, or incorrect. Young children appear to have difficulty in evaluating the value of the information provided by adults (Ironsmith & Whitehurst, 1978; Wiig, Semel, & Abele, 1981). When difficulties occur, the effectiveness of the communication breaks down, as children appear to be less capable of asking for assistance (Dickson, 1974; Meissner, 1975; Whalen, Henker, Collins, McAuliffe, & Vaux, 1979).

Conversely, when an adult feigns misunderstanding of a child's communication and asks for clarification, young children appear capable of rephrasing the information in at least one additional form (Gallagher, 1977). The adult would use such sentences as: (a) "What did you say?", (b) "I don't understand", or (c) "Tell me again." In some
instances, the child would repeat his previous utterance. But, in most cases, an attempt was made to rephrase the information by substituting other descriptive terms.

In a similar paradigm, learning disabled and normally achieving ten to twelve year old boys were asked to teach the game of checkers to an adult, after it was determined that they knew the game (Knight-Arest, 1981). The adult was primed to display difficulty learning the rules and procedures. Analysis of the language revealed that learning disabled boys were less effective in their response to expressions of confusion; syntactic expertise was less refined; more words were used, but less information was conveyed; problems of expressing knowledge were evident; more gestures and demonstrations were used; vocabulary was less varied and repetitious; difficulty in reformulation of information was noted; and ambiguous directions were given.

Fourth and seventh grade children, rated on a scale of conceptual tempo, were asked to detect linguistic ambiguities, of either phonological, lexical, surface-structure, or deep-structure ambiguities (Brodzinsky, Feuer, & Owens, 1977). Asked to paraphrase sentences containing ambiguities, reflective children were more successful than impulsive and slow-inaccurate children in spontaneously detecting the multiple meaning of ambiguous sentences. But when prompted to reconsider the meaning of
the sentences, the differences among conceptual tempo groups were eliminated, suggesting that the metalinguistic ability is more readily available than presumed.

Learning disabled and normally achieving students were asked to perform similar activities, with the addition of pictures in order to determine their perception and interpretation of ambiguous sentences (Wiig, Semel, & Abele, 1981). Lexically ambiguous sentences, syntactically ambiguous sentences, and unambiguous sentences were presented. With both lexical and syntactical ambiguities, the twelve year old learning disabled student performed less successfully than the twelve year old normally achieving student. No differences were found between the twelve year old learning disabled student and normally achieving eight year old students on the detection of lexical ambiguities. There was a significant relationship of the twelve year old learning disabled student's performance with syntactic ambiguities to the performance of normally achieving six year old students. From these results, it appears that there is a significant problem in the acquisition of linguistic competence of the learning disabled student.

The results of the Wiig, Semel and Abele (1981) study must be questioned. First, examination of the materials used in the study reveals poor examples of syntactically and semantically anomalous sentences. For example, "He
laughed at the church" was used as an example of a syntactic deep-structure ambiguity, but normal English usage patterns suggest that the sentence is correctly formed for one interpretation, but needs to be revised to "He laughed at church" to make sense for the additional interpretation. This and other questionable sentences suggests that the test would lack validity. The data must be questioned, as the empirical procedures contain many sources of error. The statistics for a two by three analysis of variance design were used. It would seem that a multivariate analysis of variance would have been more appropriate, due to the intercorrelation of variables, and more stringent controls for error variance.

In an effort to evaluate the communication abilities of normally achieving and learning disabled children, first through eighth grade, data was gathered on the ability to respond to informative messages provided by adults. Learning disabled students were less likely to request additional information, and, as a consequence, made less correct choices. Except for the first and second grades, there were no differences in the ability to identify inadequate information, but differences were evident in requests for additional information. "It appears, then, that learning disabled children may recognize that a speaker's message is ambiguous and may have the linguistic ability to formulate questions, but
still fail to understand what their role as listeners should be" (Donahue, Pearl, & Bryan, 1980, p. 399). The fact, however, that adults provided the inadequate information may confuse the findings, as children are then displaying a problem of ineffective social skills. The learning disabled students can detect ambiguous information and respond to requests for more information (Knight-Arest, 1981), suggesting that their perception of the communication process is appropriate, thus the conclusion of Donahue, Pearl, and Bryan lacks validity.

Summary

When presented with inaccurate or incomplete information, learning disabled children had difficulty responding in an effective manner. They did not ask for more information or assistance as often as normally achieving children. Conversely, when an adult or peer would ask learning disabled children for more information regarding a task, learning disabled children would use different words and many more words than normally achieving children, but failed to provide relevant information.
CHAPTER III

METHODOLOGY

This chapter describes the sequence, materials, and procedures necessary to conduct this study. The following topics are included: (a) sample selection, (b) materials and equipment, (c) training and evaluation of examiners, (d) collection of data, (e) preparation for data analysis, (f) procedures for analysis, (g) training and evaluation of judges, and (h) treatment of data.

Sample Selection

Permission was obtained from the McKinney Independent School District to conduct organized research within the school district. McKinney, Texas, is primarily comprised of white, middle class families.

Normally achieving and learning disabled children in the fifth and seventh grades were randomly selected for the study. Male children were chosen for this study, because of the greater number of males in classes for children with learning problems. Learning disabilities appear in boys four to six times more often than in girls (Lerner, 1971). Fifth and seventh grade children were chosen, as research has indicated that at this age, the use and understanding of metaphors is stable for normally
achieving children (Billow, 1981; Gardner, 1974; Winner, 1979). As random selection of subjects is preferred in order to achieve more valid statistical results (Cohen, 1977), children were randomly selected through the use of a table of random numbers, without replacement (Sax, 1968).

Lists of fifth and seventh grade learning disabled male children and fifth and seventh grade normally achieving male children were provided by the counselors of the respective schools. There were thirty fifth grade learning disabled male children, one hundred fifty fifth grade normally achieving male children, thirty-one seventh grade learning disabled male children, and one hundred thirty seventh grade normally achieving male children. Each list was consecutively numbered and selection of students was then based upon the table of random numbers, without replacement. Consent forms, authorizing participation in the study were sent to the parents by mail. In addition to the consent forms which gave the parent opportunity to give permission or withhold permission, the study was described. Only those students who received parental permission were included in the study.

Twenty fifth grade normally achieving male children, twenty fifth grade learning disabled male children, twenty seventh grade normally achieving male children, and twenty
seventh grade learning disabled male children were selected for the study. For large effect size that is, substantial absolute differences, Cohen (1977) suggests that twenty subjects in each group is sufficient to detect statistically significant differences at a \( p \) of .05 with power of .84.

**Materials and Equipment**

The materials and equipment required for the metaphor preference test (MPT) were

1. 100 copies of the metaphor preference test (Appendix A);
2. Script for the examiner presenting the priming and directions (Appendix B);
3. Chalkboard, chalk, and eraser;
4. Pencil and eraser for each student (provided by students);
5. Key to grade test (Appendix C);

The personal interview to elicit metaphor productions required

1. Script for examiner presenting the priming and directions (Appendix D);
2. Form for the recording of responses (Appendix E);
3. Audio tape recorder, 20 ninety-minute tapes, and microphone;
4. Copy of MPT;
5. Answer key for metaphor production (Appendix F).

The personal interview to explain metaphor productions required

1. Script for the examiner presenting the priming and directions (Appendix J);
2. Form to record responses of students (Appendix H);
3. Audio tape recorder, 20 ninety-minute tapes (used above), and microphone;
4. Responses of students on the metaphor production task;
5. Answer key for explanation of metaphor production (Appendix I).

The personal interview to explain metaphor preferences required

1. Script for the examiner presenting the priming and directions (Appendix J);
2. Form to record responses of students (Appendix K);
3. Audio tape recorder, 20 ninety-minute tapes (used above).

Training and Evaluation of Examiners

Five certified teachers assisted in the collection of the data. Their certification was from Texas (three), Ohio (1), and Utah (1) with major areas of study
encompassing elementary education (3), English (1), and special education (1). The years of experience as a classroom teacher ranged from one year to ten years, but at the present time none were employed on a full-time basis. They were either attending graduate school or working as a substitute teacher in school districts other than McKinney Independent School District.

The training for the examiners was conducted by the author. Topics covered in the training were (a) examples of metaphors, (b) parts of metaphors, (c) perceptual and conceptual examples of ground, (d) concept of ground, and (e) comparison and simile patterns of speech. The priming and directions were given to them so they could be memorized. Practice sessions were conducted with each other, and a brainstorming session was held to think of questions that would possibly elicit answers from the students, if difficulties in responding occurred.

Collection of Data

Procedures for the collection of data were broken into the four components of the study. In all phases of the study, the same priming and directions were given to normally achieving and learning disabled children. The metaphor preference test was given to the entire sample for each grade at one time. The library space was used for this purpose. The other three parts of the test were
administered individually to the students, who were tested in a random order, regardless of group membership.

**Metaphor Preference Test**

The script (Appendix B) of priming and directions was used. The examiner memorized the priming portion of the script and presented the information in a conversational tone of voice (the script was available for reference). With the priming establishing the purpose of the test, opportunities were given for questions and answers. The test was then distributed and the directions for the test were read. Again, opportunities were given for questions. The examiner read the five choices for item one and the students made a check mark in front of the preferred metaphor. This procedure was followed for the twenty-five items on the test. The activities of the children were monitored to insure full participation. Papers were then collected and the children thanked for their cooperation.

**Interview**

The children were interviewed for approximately thirty minutes to determine metaphoric production abilities, explanation of the ground of produced metaphors, and explanation of the ground of preferred metaphors. Rapport was established, as the examiner verified the student's name and birth date. The purpose of the tape recorder was given. Throughout the interview
process, the examiner exhibited the desire for individual thought and production, in order to capitalize on individual difference. This was especially important during the times when explanations of the grounds of metaphors are given.

Metaphor production and explanation—These two tasks were done in alternating fashion, but the scripts for priming and directions were separate (Appendix D and Appendix G). The examiner presented the priming and directions for metaphor production with opportunities for interaction and then began the test. The examiner read the first portion of item one of the MPT, that is, the topic, and the student produced the second portion of the metaphor, that is, the vehicle. After the first metaphor was constructed, the examiner introduced the priming and directions for explanation of the produced metaphor. After the student had given his explanation of the grounds shared by the topic and vehicle, the examiner introduced the second item, following the same procedure. All twenty-five items followed the same procedure of alternating the production and explanation of metaphors.

Metaphor preference explanation—After the children had completed the MPT, and had constructed and explained their metaphors, they were asked to give explanations of why they chose the particular combination of topic and
vehicle of the preferred metaphor. The examiner followed the script for priming and directions (Appendix J). Using the responses of the MPT, the examiner read the entire metaphor and attempted to elicit an explanation of why the combination of topic and vehicle were pleasing or meaningful to the student. The examiner read each of the twenty-five preferred metaphors, with the student giving an explanation after each one.

Preparation for Data Analysis

The data from the four components of the study were in written form or on audio tape, with the preparation broken into the four components of the study. Part I, metaphor preference is in written form, ready to be evaluated. Part II, metaphor production, is in written form, with audio tapes of the material available for verification. Before the scoring began, the written copy of metaphor production was verified against the audio tape. Part III, produced metaphor explanation, and Part IV, metaphor preference were on audio tapes.

Two sets of data from each of the four groups, that is, fifth grade learning disabled, fifth grade normally achieving, seventh grade learning disabled, and seventh grade normally achieving children, were collected for training purposes. The author trained two judges in the following areas: (a) purpose of the study, (b) examples
of metaphors, (c) parts of metaphors, (d) perceptual and conceptual examples of ground, (e) concept of ground, (f) comparison and simile patterns of speech and (g) practice with samples of student's responses. One judge was a graduate student in English and the other judge was an employed special education teacher.

After the initial training period that is described above, the two judges rated four sets of data. A minimum correlation of .90 was set as criterion in advance. The raters achieved a correlation of .94 on the four sets of data.

Treatment of Data

Multivariate analysis of variance is the most appropriate technique for multiple dependent measures (Walberg & Amick, 1975). Multivariate analysis of variance provides procedures whereby the simultaneous analysis of the experimental variables' effect on a set of dependent measures can be conducted. Specifically, a two by two multivariate analysis of variance with four dependent variables was utilized. Where possible, raw score data were used; proportions were used in other cases, with caution as noted in Cohen and Cohen (1975). Three forms of transformation of proportional data were explored, that is, arcsine, probit, and logit transformations, to determine if one of the procedures would
formations, to determine if one of the procedures would improve the distribution of data. None of the procedures significantly improved the distribution, therefore, it was decided to use the proportional scores.

The independent variables were group membership, learning disabled and normally achieving children, and grade level, fifth and seventh grades. The dependent variables were (a) a measure of metaphor preference, (b) a measure of metaphor production, (c) a measure of explanation for metaphor preference, and (d) a measure of explanation for metaphor preference. In this analysis, the groups were compared on all dependent measures while maintaining an overall Type I error rate of .05. In addition to comparing the multivariate $F$, each dependent measure was tested at the univariate level for significance. Correlations between grade, group membership, and each of the dependent variables are reported. Additionally, means and standard deviations are reported for all variables and each factor.

Procedures for Analysis

Procedures for the analysis of data were broken into the four components of the study. The same judges scored all four phases of the study.
Metaphor Preference

The choices of the group administered metaphor preference test were analyzed in three steps. First, the data were checked to determine how many responses were answered. Of the responses, the number of literal comparisons was totaled and the final score was the number of metaphors that were chosen.

Metaphor Production

The metaphor production data were scored according to whether the students produced an identifiable metaphor, based upon identified grounds. Items that were completed in a literal description or in a nonsensical manner were considered incorrect. All completions that had an identified ground, perceptual or conceptual, were considered correct. The pattern of simile or declarative statement was considered correct. The final scores were the total of correctly produced metaphors.

Metaphor Production Explanation

The explanation of the factors held in common by the topic and vehicle of the metaphor were solicited after the completion of each item; that is, Part I and Part II of the interview were conducted in alternating fashion, but the scoring was performed separately. Scoring for Part II consisted of the evaluation of judges to determine if the
The explanation of the ground was consistent with the identified ground of the metaphor. The judge had already determined if an acceptable metaphor had been produced, the ground had been identified, and it was now determined if the explanation matched the produced metaphor's ground in an acceptable manner. The number of correct explanations of correctly produced metaphors was transformed into a percentage correct score.

**Preferred Metaphor Explanation**

The explanations of the grounds of the preferred metaphor were scored in a similar fashion to the produced metaphor explanations. The judges determined possible grounds of all the choices on the test (Appendix L). Based upon this agreement, the explanations of the students were analyzed to determine the ground. Agreement between the choice of the judges for ground designation and student explanation was considered correct. In some cases, the students gave very logical explanations that the judges had not thought of; that is, a conceptual basis for the ground was as valid as a perceptual explanation. In these cases, upon agreement of the judges, the explanation was considered correct.
CHAPTER IV

RESULTS

This chapter contains the description of the results of this study. Following a restatement of the hypotheses of this study, the multivariate analysis of variance tests of significance are reported. The univariate analysis of variance is then described for those variables that had multivariate significance, presented with descriptive information for each cell. The correlation coefficients among the dependent variables are presented to establish the intercorrelations.

Hypotheses

A multivariate analysis of variance was performed in order to test the hypotheses of this study. Learning disabled and normally achieving children were thought to differ on several dependent measures obtained during experimental investigation in which children contributed information about their metaphoric competence.

The hypotheses are stated in the following fashion:

The study of metaphoric preference encompassed the following hypotheses.
1. Learning disabled children have a different rate of metaphorical preference than normally achieving children.

2. Fifth grade children have a different rate of metaphoric preference than seventh grade children.

The study of metaphor production encompassed the following hypotheses.

3. Learning disabled children produce fewer appropriate metaphors than normally achieving children.

4. Fifth grade children produce fewer appropriate metaphors than seventh grade children.

The study of the explanation of produced metaphors encompassed the following hypotheses.

5. Learning disabled children explain the ground of produced metaphors less accurately than normally achieving children.

6. Fifth grade children explain the ground of produced metaphors less accurately than seventh grade children.

The study of the explanation of preferred metaphors encompass the following hypotheses:

7. Learning disabled children explain the ground of preferred metaphors less accurately than normally achieving children.
8. Fifth grade children explain the ground of preferred metaphors less effectively than seventh grade children.

Multivariate Tests of Significance

A multivariate test of the assumption of equal dispersion matrices was computed to evaluate the hypothesis that these data might represent four independent samples from a single multivariate normal population. The hypothesis of homogeneous dispersions was not tenable ($\chi^2 = 2.08$, df = 30, 15880, $p < .001$). Because of the significance of the $\chi^2$ test, large amounts of individual variation within groups can be ruled out and any differences among groups can be attributed to the power of the variables for discriminating among group centroids (Walberg & Amick, 1975).

A multivariate analysis of variance (MANOVA), which provides a statistical test of the significance of the differences among the dependent variables revealed two significant main effects (Table I). The Wilks' Lambda criteria for grade level was .81685 having an associated $\chi^2$ value of 4.09 (df = 4, 73; $p < .005$). This indicated the fifth and seventh grades had a different multivariate centroid on the dependent measures. The Wilks' Lambda criteria for group membership was .23 having an associated $\chi^2$ value of 60.25 (df = 4, 73; $p < .001$). The learning
disabled group and the normally achieving group had a
different multivariate centroid on the dependent measures.

Nonsignificant differences were found for the
interaction effect of grade level and group membership.
The Wilks' Lambda criteria for the interaction effect of
grade level and group membership was .95 having an
associate $F$ value of .95 ($df = 4, 73; p < .439$). The
interaction effect did not serve to discriminate between
the dependent measures.

TABLE I

<table>
<thead>
<tr>
<th>Source</th>
<th>Wilk's Approximate $F$</th>
<th>Hypothesis df</th>
<th>Error $df$</th>
<th>Significance $F$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade Level</td>
<td>4.13</td>
<td>4</td>
<td>73</td>
<td>.005</td>
</tr>
<tr>
<td>Group</td>
<td>60.25</td>
<td>4</td>
<td>73</td>
<td>.001</td>
</tr>
<tr>
<td>Grade by Group</td>
<td>.95</td>
<td>4</td>
<td>73</td>
<td>.439</td>
</tr>
</tbody>
</table>

In summary, significant effects were found for the
two factors, grade level and learning condition. The
interaction factor of grade level and learning condition
was not significant and will not be included in further
discussions.
Univariate F Tests

In order to specify the effects that contributed to the significant F test of multivariate analysis of variance, a univariate test for each dependent variable was conducted (Table II). The factors, grade level, and learning condition, were analyzed for each dependent variable. The level of significance for each variable will be reported.

When the group membership (e.g., normally achieving and learning disabled) was the factor of interest, the dependent variables were found significant. Each of the dependent variables, that is, (a) metaphor preference, (b) metaphor production, (c) produced metaphor explanation, and (d) preferred metaphor explanation, were found to significantly differentiate among the two groups in the group membership factor. The level of significance for each of the variables is high; that is, the significance level for $F$ is $p < .001$.

The grade level factor (e.g., fifth and seventh grade) was analyzed, and mixed results were found. The two dependent variables, produced metaphor and metaphor preference explanation, were found significant with a significance level for $F$ at the probability level of .001. Produced metaphor explanation approached significance; that is, the significance level for $F$ is $p < .101$. The
TABLE II

UNIVARIATE $F$ TESTS
(1, 76 df)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Source of Variation - Learning Condition</th>
<th>$F$ Significance of $F$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hypothesis MS</td>
<td>Error MS</td>
</tr>
<tr>
<td>Metaphor Preference</td>
<td>156.80</td>
<td>12.49</td>
</tr>
<tr>
<td>Produced Metaphor</td>
<td>1216.80</td>
<td>12.35</td>
</tr>
<tr>
<td>Produced Metaphor Explanation</td>
<td>12078.61</td>
<td>98.16</td>
</tr>
<tr>
<td>Metaphor Preference Explanation</td>
<td>8862.05</td>
<td>71.35</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source of Variation - Grade Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metaphor Preference</td>
</tr>
<tr>
<td>Produced Metaphor</td>
</tr>
<tr>
<td>Produced Metaphor Explanation</td>
</tr>
<tr>
<td>Metaphor Preference Explanation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source of Variation - Grade Level x Learning Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metaphor Preference</td>
</tr>
<tr>
<td>Produced Metaphor</td>
</tr>
<tr>
<td>Produced Metaphor Explanation</td>
</tr>
<tr>
<td>Metaphor Preference Explanation</td>
</tr>
</tbody>
</table>
metaphor preference measure was nonsignificant; that is, the significance level for $F$ is $p < .450$.

**Metaphor Preference**

Analysis of the metaphor preference test score revealed significant main effects for group membership ($F(1,76) = 12.5559, p < .001$). Examination of the means (Table III) shows normally achieving children selecting more metaphors than learning disabled children in the metaphor preference test. Learning disabled children were more likely to choose a literal comparison, instead of a metaphorical comparison. The hypothesis for this phase of the study states, "Learning disabled children will have a different rate of metaphorical preference than normally achieving children." The hypothesis is retained due to the fact learning disabled children chose fewer metaphorical comparisons than did normally achieving children. This finding suggests that further analysis would be appropriate.

When grade level, fifth and seventh grade, is the factor of interest, the dependent variable of metaphor preference was nonsignificant ($F(1,76) = .5765, p < .450$). Nonsignificant differences for metaphor preferences of fifth and seventh graders revealed that fifth and seventh grade children had the same rate of metaphor preference.
<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Fifth Grade</th>
<th>Seventh Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Normally achieving</td>
<td>Learning Disabled</td>
</tr>
<tr>
<td>Metaphor Preference</td>
<td>20.45</td>
<td>17.00</td>
</tr>
<tr>
<td></td>
<td>3.35</td>
<td>3.40</td>
</tr>
<tr>
<td>Produced Metaphor</td>
<td>21.70</td>
<td>13.15</td>
</tr>
<tr>
<td></td>
<td>2.81</td>
<td>3.92</td>
</tr>
<tr>
<td>Produced Metaphor Explanation</td>
<td>96.85</td>
<td>74.70</td>
</tr>
<tr>
<td></td>
<td>4.83</td>
<td>11.86</td>
</tr>
<tr>
<td>Metaphor Preference Explanation</td>
<td>93.70</td>
<td>72.75</td>
</tr>
<tr>
<td></td>
<td>7.31</td>
<td>7.16</td>
</tr>
</tbody>
</table>
The hypothesis for this phase of the study states, "Fifth grade children will have a different rate of metaphoric preference than seventh grade children." The hypothesis is rejected, as there was no difference in the population for literal and metaphorical comparisons made in the metaphor preference task. It would be appropriate at some time to investigate if the same type of metaphors, that is, the ground of the comparison, is the same for the fifth and seventh grade children.

**Produced Metaphor**

With regard to the test of produced metaphors, the univariate effects for the learning condition were significant ($F(1,76) = 98.52, p < .001$). Learning disabled children did not produce as many metaphors as normally achieving children. Literal endings were more often created, rather than a metaphorical ending for the comparison.

The third hypothesis of this study states, "Learning disabled children will produce fewer appropriate metaphors than normally achieving children." The hypothesis is accepted, as learning disabled children created literal comparisons instead of metaphors.

With regard to the test of producing a metaphor, the univariate analysis resulted in significant effects for the grade level condition ($F(1,76) = 7.84, p < .006$).
When the fifth grade and seventh grade rate of produced metaphors is compared, unexpected results were found. Fifth grade children produced more metaphors than seventh grade children.

The fourth hypothesis of this study states, "Fifth grade children will produce fewer appropriate metaphors than seventh grade children." The hypothesis must be rejected, as seventh grade children did not create as many metaphors as fifth grade children. Other research on produced metaphors has mixed results and the discussion section of this paper will analyze the results, in order to obtain clarification.

**Produced Metaphor Explanation**

Analysis of the produced metaphor explanation task, in which the children were asked to explain why they created the particular type of comparison, revealed significant effects for the factor of group membership ($F(1,76) = 123.05, p < .001$). Normally achieving children were more skilled in the explanation of the type of comparison they chose. Learning disabled children were less adept in explaining the ground of the metaphor. Not only could they not create metaphors as readily as the normally achieving children, they could not explain their metaphors as well as normally achieving children.
The hypothesis for this task states, "Learning disabled children will explain the ground of produced metaphors less accurately than normally achieving children." This hypothesis is accepted, thus adding to the composite of information of learning disabled children choosing fewer metaphors, producing fewer metaphors, being less accurate in explaining the ground of the metaphor. The level of significance is the same for all three variables.

When the factor of explaining the metaphors fifth and seventh grade children produced was analyzed, the effects were nonsignificant ($F(1,76) = 2.75, p < .101$). While nonsignificant, the probability level is quite high, suggesting that more information regarding this area is needed, as there is a trend for significant differences for most factors.

The sixth hypothesis of this study states, "Fifth grade children will explain the ground of produced metaphors less accurately than seventh grade children. Although the probability level is quite high, the hypothesis must still be rejected. Several possible explanations for this finding will be discussed in the next chapter to possibly clarify these results.

Metaphor Preference Explanation

With regard to the test of explaining the comparison seen in the metaphors that were found pleasing or
meaningful, the univariate test resulted in significant effects for the learning condition ($F (1,76) = 124.20, p < .001$). Following the same pattern of results for the other variables, learning disabled children were less adept in explaining the reasons they found the metaphors pleasing or meaningful. Normally achieving children preferred metaphorical rather than literal comparison and could explain the metaphorical relationships more effectively.

"Learning disabled children will explain the grounds of preferred metaphors less accurately than normally achieving children" is the hypothesis related to the task of explanation of preferred metaphors. With the acceptance of this hypothesis, the composite of information about the metaphoric competence of learning disabled children is completed. In all four measures of metaphoric competence, that is, metaphor preference, produced metaphor, produced metaphor explanation, and preferred metaphor explanation, there have been significant differences reported for all measures.

Analysis of the metaphor preference explanation task for the effect of grade level found significant effects ($F (1,76) = 12.77, p < .001$). Examination of the means reveals seventh grade children were less adept in explaining why they found the grounds of the metaphors to be a meaningful comparison. Fifth grade children were
more adept at this task.

The final hypothesis of this study, "Fifth grade children will explain the ground of preferred metaphors less effectively than seventh grade children," is rejected. Seventh grade children explained their preference less accurately than fifth graders, while they chose more literal comparisons and fewer metaphorical comparisons than fifth grade children. Fifth grade children chose more metaphors but did not explain them well.

Summary

The findings for the effect of normally achieving and learning disabled children for the dependent variables are unequivocal. For the sample of children in this study, there were significant differences on all measures. Normally achieving children had a different rate of metaphorical preference, as learning disabled children chose more literal comparisons than the normally achieving children did. Normally achieving children created more metaphors than learning disabled children. Learning disabled children were more prone to not developing any type of comparisons; that is, they would remain silent. Normally achieving children were adept at explaining the metaphors they produced. In addition to producing fewer metaphors, learning disabled children were less skilled in
explaining. Normally achieving children were effective in explaining the metaphors they preferred. Learning disabled children chose fewer metaphorical comparisons and were also less skilled in talking about them. In conclusion, learning disabled children displayed less effectiveness in the four tasks.

The findings for the effects of grade level are mixed. Nonsignificant effects were found for metaphor preference. There were no differences in the rate of metaphor preferences for fifth and seventh grade children. Neither group chose more literal comparisons than the other group. Significant differences were found for the produced metaphor measure, but analysis of the data revealed fifth grade children produced more metaphors than seventh grade children; thus, the hypothesis was rejected. The explanations for produced metaphors were at a different rate, but did not achieve significance, although fifth grade children were more able to explain the ground of metaphors. The explanation for metaphor preference task was significant. Fifth graders were again able to explain the comparisons of the metaphors they preferred.

Most of the hypotheses of this study are supported, especially for the factor of group membership, that is, normally achieving and learning disabled. The findings will be discussed in the following chapter.
Correlations Among the Variables

Correlations among the variables for the total sample are reported in Table IV. The highest correlation among the dependent variables is between the produced metaphor measure and the explanation of the ground of the produced metaphor measure ($r = .78$, $p < .001$). This correlation indicates a strong association between the ability to produce a metaphor and to explain the salient ground of

TABLE IV
CORRELATIONS FOR MAJOR VARIABLES

$N = 80$

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preferred Metaphor</td>
<td>**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Produced Metaphor</td>
<td>.43</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Produced Metaphor Explanation</td>
<td>**</td>
<td>**</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Metaphor Preference Explanation</td>
<td>.20</td>
<td>.09</td>
<td>.24</td>
<td>1.00</td>
</tr>
</tbody>
</table>

* $p < .05$

** $p < .01$

*** $p < .001$
the metaphor. Another highly significant correlation is between the measure of metaphor preference and the measure of produced metaphor ($r = .43$, $p < .001$). This correlation indicates a significant relationship between the ability to produce a metaphor and the rate of metaphoric preference. An equally strong correlation is found between the measure of metaphoric preference and the explanation of produced metaphors ($r = .42$, $p < .001$). This correlation indicates the rate of metaphoric preference and the ability to explain the produced metaphors are closely related.

A significant correlation, to a lesser degree, is between the measure of the explanation of produced metaphors and the explanation of preferred metaphors ($r = .24$, $p < .01$). This correlation indicates a moderate relationship between the measure of explanation of produced metaphors and explanation of preferred metaphors. Another significant correlation is between the measure of metaphor preference and the explanation of preferred metaphors ($r = .20$, $p < .01$). This correlation indicates significant association between the measure of metaphor preference and the explanation of preferred metaphors.

Only one set of dependent variables did not reveal significance. Nonsignificant findings were evidenced for the correlation between the measure of produced metaphors
and the measure of metaphor preference explanation ($r = .09$). There is a very weak relationship between the measure of produced metaphors and metaphor preference explanation.

**Summary**

One of the assumptions of a multivariate analysis of variance procedure is that dependent variables are intercorrelated in some fashion. There are six correlations possible for the four dependent variables. The combinations of variables are: (a) preferred metaphor and produced metaphor, (b) preferred metaphor and produced metaphor explanation, (c) preferred metaphor and metaphor preference explanation, (d) produced metaphor and produced metaphor explanation, (e) produced metaphor and metaphor preference explanation, and (f) produced metaphor explanation and metaphor preference explanation. All of these relationships were found to be significant, except for the variables of produced metaphor and preferred metaphor explanation. The probability levels that were significant ranged from .05 to .001. Thus, the validity of utilizing MANOVA procedures is substantiated.
CHAPTER V
DISCUSSION

The purpose of the present study was to compare the metaphorical competence of learning disabled and normally achieving children in the fifth and seventh grade. The sample consisted of eighty children: (a) twenty learning disabled fifth grade children, (b) twenty normally achieving fifth grade children, (c) twenty learning disabled seventh grade children, and (d) twenty normally achieving seventh grade children. All subjects were male and attended McKinney Independent School District, McKinney, Texas.

Four measures were made of metaphorical abilities. The first task was a multiple choice test (Appendix A), administered to each grade as a group. The purpose of the test was to determine the rate of metaphoric preference, as literal comparisons were included in the test. The test was developed in a Harvard study to determine the type of metaphors that were preferred by children and adults. Part two of the test consisted of the children developing metaphors. The first part of the metaphor preference test items was read to the children, who created a comparison to complete the sentence. The third
part of the test required the children to give explanations of why they found the produced metaphors meaningful to them. Part four of the test consisted of the children explaining why the preferred metaphor test items were pleasing and meaningful.

The scoring of the tasks consisted of (a) identifying the number of metaphors in the metaphor preference test that were chosen from the twenty-five items, (b) identifying the number of metaphors that were produced, (c) identifying the number of explanations of produced metaphors that accurately described the common elements of comparison of the topic and vehicle of the produced metaphor, and (d) identifying the number of explanations that accurately described the common elements of comparison of the preferred metaphor. The scores of the first two parts were raw scores, that is, the number of preferred metaphors and the number of produced metaphors. The scores of the last two parts consisted of the proportion of correctly produced metaphors and preferred metaphors and acceptable explanations.

The scores for the four parts of the metaphor task had eight hypotheses that related to specific parts of the task. All of the hypotheses are directional, with the exception of the first two hypotheses. There are similar hypotheses for the factors of grade level and group membership for each task, that is, metaphor preference,
metaphor production, metaphor production explanation, and metaphor preference explanation.

The study of metaphoric preference encompassed the following hypotheses:

1. Learning disabled children have a different rate of metaphorical preference than normally achieving children.

2. Fifth grade children have a different rate of metaphorical preference than seventh grade children.

The study of metaphor production encompassed the following hypotheses:

3. Learning disabled children produce fewer appropriate metaphors than normally achieving children.

4. Fifth grade children produce fewer appropriate metaphors than seventh grade children.

The study of the explanation of produced metaphors encompassed the following hypotheses:

5. Learning disabled children explain the ground of produced metaphors less effectively than normally achieving children.

6. Fifth grade children explain the ground of produced metaphors less effectively than seventh grade children.
The study of the explanation of preferred metaphors encompass the following hypotheses:

7. Learning disabled children explain the ground of preferred metaphors less effectively than normally achieving children.

8. Fifth grade children explain the ground of preferred metaphors less effectively than seventh grade children.

The main effects for each of the four tasks between the learning disabled and normally achieving children were significant. On all measures the normally achieving children were more capable and accurate. The fifth and seventh grade analysis of the four tasks had mixed findings. Significant differences were found on the measures of produced metaphors and metaphor preference explanation, with produced metaphor explanation being in the predicted direction. The fifth graders, however, produced more metaphors than seventh graders and explained the preferred metaphors in a more meaningful fashion.

The results of the study will be discussed by hypothesis.

Hypothesis 1

Univariate analysis was significant for the dependent variable. Examination of the cell means of learning disabled and normally achieving children revealed normally
achieving children chose more metaphors.

The grounds of the metaphors were primarily based upon color, movement, sound, shape, or a combination of these characteristics. There were grounds that could be identified as having a conceptual basis, and literal comparisons were also included as choices. In post hoc data analysis, learning disabled children consistently chose available literal comparisons. Several explanations for this finding are (a) learning disabled children have a personal vocabulary that is concrete and limited; (b) learning disabled children have difficulty in evaluating the value of information; and (c) learning disabled children have difficulty in detecting the multiple meaning of ambiguous sentences.

In order to select an ending for the topic of the sentences in the metaphor preference test, the ability to understand the vocabulary of the task is a critical factor. The test has a reading level of fifth grade; thus, the listening level would be lower. While it was believed that reading the test to the children would guard against lack of understanding, the fact that learning disabled children have difficulties in vocabulary knowledge could possibly affect the results (Hresko, 1979; Wilg & Semel, 1976).

A recommendation for future research on metaphoric competence would be to covary the learning disabled and
normally achieving subject on some measure of vocabulary ability to determine if language differences significantly affect the findings.

Another possible explanation for the findings that learning disabled children have a different rate of metaphor preference; that is, they chose more literal endings than metaphoric endings than normally achieving children, is learning disabled children are known to have difficulty in the evaluation of information (Asher, 1976; Ironsmith & Whitehurst, 1978; Wilg, Semel, & Abele, 1981). If learning disabled children cannot decide if information is valid, worthwhile, or truthful, making a decision about what kind of ending was pleasing or meaningful to them could be a difficult task. Even with the priming instructions emphasizing there were no right or wrong answers, the task might have been difficult for learning disabled children.

Another closely related finding suggests that learning disabled children have difficulty in the detection of ambiguous sentences, based upon syntactic or lexical ambiguity (Brodzinsky, Feuer, & Owens, 1977; Wilg, Semel and Abele, 1981). If difficulty was experienced in processing figurative language, with learning disabled disabled children giving responses appropriate for younger children, perhaps the rate of metaphor preference would be similar to younger children. In the Silberstein, Gardner,
& Winner study (in press) younger children in the lower elementary grade chose more literal endings than any other type ending. In the present study, learning disabled children also chose more literal endings.

Hypothesis 2

Hypothesis 2 predicted fifth grade children would have a different rate of metaphor preference than seventh grade children. This hypothesis was upheld as fifth grade children chose more metaphoric endings than the seventh grade children. The results of the Harvard study are relevant at this point (Silberstein, Gardner, & Winner, in press). There were no seventh grade children in the study; but there were first, third, fifth, sixth, and eighth grade, and older children and adults. Fifth grade children chose more metaphors than sixth or eighth grade children, but fewer metaphors than first and third grade children. The findings of the Harvard study and this study are consistent. In the Harvard study, the sixth and eighth grade children chose more literal endings than the younger children. An explanation for the results of the Harvard study was that the sixth and eighth graders expressed a desire to be as accurate as possible and apparently believed that a literal comparison was more accurate.
Hypothesis 3

The third hypothesis focused upon the rate of metaphor production by learning disabled and normally achieving children and was accepted. It was determined that normally achieving children created more metaphors than learning disabled children. These results are significant in that the differences occurred even after there was extensive priming to elicit the production of metaphors. Learning disabled children did not have the ability to produce metaphors as normally achieving children did.

Metaphoric production begins early in the language development of children (Billow, 1981; Gardner, 1974; Gardner, Kircher, Winner, & Perkins, 1975; Genter, 1977; Kogan, Connor, Gross, & Fava, 1980; Pollio & Pollio, 1974; Winner, 1979). It is critical to determine if younger learning disabled children produce metaphors, as differences in the rate of production for learning disabled children were found. Possible reasons for the differences between learning disabled and normally achieving children are (a) in spite of the extensive priming, learning disabled children were not able to understand what the examiners were explaining or describing; (b) learning disabled children were not able to express themselves in an understandable manner;
(c) learning disabled children have less creativity than normally achieving children; or (d) learning disabled children produced metaphors at a rate appropriate to younger normally achieving children.

It is possible that learning disabled children were not able to comprehend the priming and directions, although it appeared that they did. Semantic elements of sentences were found to be altered or omitted when repeated by learning disabled children, suggesting the meanings or the words were unclear (Hresko, 1979). Learning disabled children have difficulty defining words in the literal sense (German, 1979); thus, the problems of attempting to use words in a nonliteral sense are understandable.

Another possible reason for the differences in the ability to produce metaphors by learning disabled and normally achieving children is learning disabled children display a less creative use of language (Morehead & Ingram, 1973). This deficit, combined with the personal vocabularies of learning disabled children being more limited and concrete than normally achieving children (Hresko, 1979), could possibly influence their productions. These differences in language usage are often so subtle, however, that some teachers could not identify the differences (Bloom & Lahey, 1978), as learning disabled children have a sufficient quantity of
speech but less information is conveyed in the formulation of information (Knight-Arest, 1981).

A very probable explanation for the differences of learning disabled and normally achieving children is learning disabled children understood the directions but could not respond. The lack of response may be due to the limited cognitive capacity of learning disabled children (Swanson, 1982). Classrooms teachers find this explanation very plausible.

The information from developmental research suggests learning disabled children could possibly be producing metaphors at a rate suitable for younger normally achieving children. Preschoolers and college students are known to produce the most metaphors, but early elementary age children display a preference for more literal and conventional descriptions (Gardner, Kircher, Winner, & Perkins, 1975). Contrary findings were made, however, when children were asked to describe abstract pictures. With this task, older children (e.g., eighth grade) were more capable than the fourth and sixth grade children (Gambell, 1977) in producing evoked metaphors. Learning disabled children could be producing fewer metaphors because they have immature language abilities.
Hypothesis 4

Hypothesis 4 was rejected, as fifth grade children produced more metaphors than seventh grade children. The greatest difficulty facing the examiners was the excellent memory of the children for responses from the metaphor preference task. The children were given recognition that they had remembered an item from the preference test, but that the examiner wanted them to think of a metaphor that was special to them. Most children seemed to respond to this priming.

Preschoolers and college age people like to use metaphors, and elementary age children are more prone to be conventional and literal in their descriptions (Gardner, Kircher, Winner, & Perkins, 1975). Younger elementary school children seem to prefer literal comparisons, and older children were more effective in producing evoked metaphors (Gambell, 1977). This finding is contrary to the results of this study, but the differences in the materials used in the task would partially explain the findings. By the time the students were asked to produce metaphors in this study, the form and content of a metaphor were known to the children. In the Gambell study, unfamiliar abstract pictures were used in which the main task was to describe the picture so that it would be identifiable. The present study may be a more
accurate measure of metaphoric production, due to the extensive priming and a more valid paradigm.

Hypothesis 5

The fifth hypothesis states learning disabled children would be less accurate than normally achieving children in explaining the meaningfulness of the metaphors they created. This hypothesis was accepted. Not only did normally achieving children produce more metaphors, they were more accurate in explaining the ground of their metaphors. This task was preceded by priming and successful completion did not require extensive vocabulary. For instance, for the metaphor, "The tire swing is a Cheerios," any mention of shape was considered correct, if shape was considered by the student to be the most relevant ground. The explanations given for metaphors has been found to vary from age to age. Preschoolers may give magical explanations; six, seven, and eight year old children may have a primitive or associative type of explanation; and ten, twelve, and fourteen year old children often gave what was considered to be a mature explanation of metaphors (Gardner & Winner, 1978; Winner, Rosenstell, & Gardner, 1976). As the normally achieving and learning disabled children were in the fifth and seventh grade, it could be expected that acceptable explanations would be given. Normally
achieving children were significantly accurate in their explanations.

Learning disabled children were less accurate and additional information is needed to determine what type of explanations were given by learning disabled children. Post hoc analysis of the data suggests that learning disabled children were more adept in discussing the grounds based upon color and shape. This finding would be in keeping with the type of metaphors that were preferred by younger children (Silberstein, Gardner, & Winner, in press). Additionally, the language factors that were discussed for metaphor production and preference would seem to be appropriate for these results.

Hypothesis 6

Hypothesis 6 concerns the ability of fifth and seventh grade children to explain the metaphors they produced. Nonsignificant results were found, although the probability level was quite high ($p < .100$). Examination of the cell reveals that the mean of the fifth grade scores was slightly higher than the seventh grade mean.

Interpretation of these results are to be done cautiously, due to the lack of significance. More important, perhaps, is the possible reason that nonsignificance was found. The most obvious reason is that the evaluation methods were not sophisticated enough
to locate possible differences among the fifth and seventh grade, as it is expected that seventh grade children would have been more accurate (Grindstaff & Muller, 1975). Another possibility is there may be differences in the samples chosen from the fifth and seventh grade. The fifth grade may also be more capable than the seventh grade in explaining the metaphors they produced.

Hypothesis 7

Hypothesis 7 was accepted with normally achieving children being more adept in explaining why they found the metaphors meaningful. As this task was similar to the explanation of metaphor productions, the rate of response was much faster than when the interview began. There could be no doubt that the children knew what was expected. It seemed that the rate of response was faster for all the children. The children were also beginning to show signs of fatigue, as the interview portion took approximately thirty minutes, with some interviews of learning disabled children lasting over forty-five minutes.

The language factors that could possibly affect the findings of this hypothesis are the same ones cited in earlier discussions. Lack of understanding of the vocabulary would affect the ability to explain the metaphors and learning disabled children have a limited
and specific vocabulary. Furthermore, if learning disabled children have difficulty in the evaluation of literal information (Asher, 1976; Ironsmith & Whitehurst, 1978), it is not surprising that explaining figurative language would also be difficult. The interaction view of metaphors portrays the comprehension of metaphors occurring in steps; that is, the literal meaning is determined, the meaning is checked against the context, and if conflict of information is evident, it is reinterpreted in a figurative manner (Clark & Lucy, 1975). Based upon this premise, the comprehension of metaphors is a more difficult task. The sequence of metaphoric abilities places the productions of metaphors as the most readily acquired ability; the comprehension of metaphors is the next acquisition; and the ability to explain the meaning of metaphors is the last ability to be acquired (Ortony, Schalert, Reynolds, & Antos, 1978). Examination of the cell means of this study shows that this tendency is probable.

Hypothesis 8

Hypothesis 8 must be rejected as the significant findings showed that fifth grade children were more effective than seventh grade children in explaining the relevance of the metaphors they chose. This finding is quite surprising, as the explanation of metaphors is
considered to be quite difficult. The interaction view of the comprehension process of metaphors discussed in a previous section is relevant here. But another view of the comprehension process may be more illuminating. The contextual view of metaphor purposes that the level of difficulty in the comprehension process depends upon the amount of context available (Ortony, Schalert, Reynolds, & Antos, 1978). Based upon this premise, the same processes are used for the comprehension of literal and figurative language; that is, the context determines the amount of time for comprehension. Regardless of the perspective taken on metaphoric competence, the results of this section are difficult to explain, unless there are substantial differences in the fifth and seventh grade populations, or the evaluation measures are not sophisticated enough to identify more definitive factors of metaphoric competence. The rationale of using the same processes for the comprehension of literal and figurative language remains tenuous until further research clarifies the issue.

**Metalinguistic Abilities**

The role of metalinguistic abilities has not been directly addressed since the introduction of this study. Metalinguistic awareness refers to the ability of people to reflect upon the components of language and speech as
objects of reflection (Slobin, 1978). Ordinarily, attention is focused upon the message expressed with language, but there are times when the form of language is the focal point of interest. Metalinguistic awareness is evident through (a) the awareness of sounds, (b) the awareness of word-meaning correspondence, (c) the awareness of rules and grammar, and (d) the awareness of ambiguity (deVilliers & deVilliers, 1978). As metaphor is considered to be one form of ambiguous language, when attention must be focused upon sentences, phrases, or words which can have different meanings in a different context, the degree of awareness of metalinguistic abilities evident in the four tasks of metaphoric competence is of interest. (deVilliers & deVilliers, 1978).

The task of selecting a metaphor that is pleasing or meaningful is indicative of an implicit level of metalinguistic awareness. As consideration is given to the selection of the vehicle of the metaphor, the necessity to use language in a different manner than in a literal fashion becomes evident. Thus, when metaphors are produced by children, they must also engage in a conscious effort to use language in a manner somewhat different from their more regular conversation. Words and phrases are used in a nonliteral fashion, requiring a degree of metalinguistic awareness.
The explanation of the meaning of metaphors also requires a conscious monitoring of the words used in the metaphor; again, the words are used in a different way than literal language. The ability to understand metaphors may be also dependent upon metalinguistic awareness. The interaction view of metaphor comprehension purposes a sequence of steps for comprehension of metaphors (Ortony, Schalert, Reynolds, & Antos, 1978), with the conscious monitoring of the decisions made about the relevancy of the message.

Ordinarily, the degree of conscious activity involved in the metalinguistic awareness process concerns differences in awareness patterns exhibited by children and adults. The tacit, implicit, level of awareness is generally reserved for the younger person, and the more conscious, explicit monitoring of information reserved for adults (Flavell, 1977; Mattingly, 1979). But considering the cognitive activities required in the formulation and understanding of metaphors, young children's ability with figurative language appears more sophisticated than previously expected. Children are skilled in the continuum of metalinguistic activities.

Implications for Education and Research

Learning disabled children are not as sophisticated as normally achieving children in the preference rate of
metaphors, the production of metaphors, and the explanations of metaphors. There is confusion regarding the abilities of fifth and seventh grade children in the same areas of metaphoric competence. In either case, it is appropriate to consider the possible implications for education that the results of metaphoric competence suggest. This study is the first definitive information of metaphoric competence for learning disabled children, and, as such, the recommendations made are of a tentative nature, subject to further substantiation.

First, oral communication within the classroom cannot be taken for granted, as metaphoric language is frequently used. Frozen metaphors are such an accepted part of our language, that little recognition is given to the possible impact in the learning disabled children's comprehension of information. For instance, when a teacher tells a child "I am going to lay it on the line", there is the possibility the child will not understand frozen metaphors. Information shared with the teacher and other children with learning disabled children may not be understood, if metaphoric language usage is not effective. Perhaps learning disabled children need more opportunities to explore and study metaphors, in order to more closely approximate normal language usage patterns and improve his communicative competence.
Problems may also occur when written material contains metaphorical language. Future study should be conducted in this area. It is known that learning disabled, impulsive, and slow-inaccurate children have problems in detecting the multiple meaning of ambiguous sentences when presented *orally* (Brodzinzky, Feuer, & Owens, 1977; Wiig, Semel, & Abele, 1981). The degree of difficulty learning disabled children would have with written ambiguous and metaphorical language is another suggested area for study.

Another area of concern for learning disabled children is the lack of competence in social interactions (Bryan, 1974). Observation would reveal if metaphorical language contributes to the lack of understanding in social encounters by learning disabled children. They are known to have difficulty in maintaining a conversation and communicating information. Furthermore, a purely subjective observation is that metaphorical language has an emotional component to it, as a person tries to communicate more information or feeling than can be expressed through literal language. Thus, when explanations are requested for the meaning of metaphorical language, the person reveals something that is not usually evident.

In conclusion, metaphorical language is a powerful instrument of communication. Metaphoric competence
furthers the production and comprehension of information and, as such, deserves a viable place in the curriculum of classes of normally achieving and learning disabled children.
APPENDIX A

NAME ______________________ DATE ________________

CLASS ______________________ BIRTH ______________________

DIRECTIONS: Each of the items of the test will be read as you follow with your copy of the test. After all choices for an item are read, please indicate your choice for the best metaphor by placing an 'X' in front of the phrase. Please mark only one response per item.

1. Falling autumn leaves are ---
   --- glowing sunsets
   --- shuffling feet
   --- pouring raindrops
   --- old photographs
   --- tossed confetti

2. The snowflake is ---
   --- a gentle kiss
   --- a twirling ballerina
   --- a falling paper airplane
   --- shining teeth
   --- a silent street

3. A wave in the ocean is ---
   --- a curl of hair
   --- a burst of energy in a tired runner
   --- a stack of dishes crashing
   --- a lion springing in attack
   --- water that goes up and down

4. After a week of clouds, the sun was ---
   --- a baby playing peek-a-boo
   --- a beachball
   --- orange juice
   --- rosiness returning to a sick person's face
   --- a birthday party

5. The child's blue eyes watching the circus were ---
   --- skies without clouds
   --- jumping sneakers
   --- fish eating the bait
   --- lively dancers
   --- big buttons

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6. A traffic jam is ---
   ___ many cars in one place
   ___ a barnyard of noisy animals
   ___ getting your jacket zipper stuck half-way
   ___ dominoes in a row
   ___ a creeping caterpillar

7. The tire swing is ---
   ___ a windshield wiper
   ___ a Cheerio
   ___ a squeaky door
   ___ an old wheel
   ___ a favorite story

8. A celery stalk is ---
   ___ crunchy snow
   ___ a splash of water
   ___ an upside-down mop
   ___ a vegetable
   ___ a lawn of grass

9. The peeling banana is ---
   ___ cloth tearing
   ___ daisy petal drooping
   ___ a person undressing
   ___ buttered popcorn
   ___ a sliver of moon

10. The popped red balloon is ---
   ___ a limp washcloth
    ___ a bottle of ketchup
    ___ a washed-away sandcastle
    ___ an empty auditorium after a concert
    ___ an apple peel

11. The streetlights along the dark highway are ---
    ___ fireflies in the air
    ___ lightbulbs on tall poles
    ___ a connect-the-dots puzzle
    ___ guards standing very still at attention
    ___ lonely people

12. Through the window, the rainy day was ---
    ___ a morning when you forget your lunch
    ___ people tiptoeing on the roof
    ___ puddles everywhere
    ___ an out-of-focus photograph
    ___ an old person's hair
13. The volcano is ---
   ____ a man who is very angry
   ____ tomato sauce boiling over the sides of a pot
   ____ a bright fire engine
   ____ a roaring lion
   ____ a whale spouting water

14. The painter's first stripe of white paint on the old gray wall is ---
   ____ a slurp of soup
   ____ salt
   ____ long hair being brushed
   ____ a falling star
   ____ sunshine after a rainy day

15. The chocolate sundae is ---
   ____ skiers moving slowly down slopes
   ____ getting to stay up past your bedtime
   ____ fudge sauce on vanilla ice cream
   ____ a zebra
   ____ a big hill

16. The sails on the riverboats are ---
   ____ shark fins
   ____ pieces of chalk
   ____ pages being noisily turned
   ____ rollerskaters going by
   ____ wings of moths

17. The red rose bud is ---
   ____ cherry cough syrup
   ____ a much loved child
   ____ a sock wadded up
   ____ a beautiful flower
   ____ a ballet dancer

18. The record playing softly on the phonograph is ---
   ____ a quiet song
   ____ a purring kitten
   ____ a summer breeze
   ____ a Frisbee
   ____ ink

19. The hatching chick is ---
   ____ a burst of sunshine
   ____ a bright lemon
   ____ a kernel of popcorn popping
   ____ tapping fingernails on a door
   ____ a child let out for recess
20. The rattle snake was ---
   ____ a long rope
   ____ soap sliding along the bathtub
   ____ a hissing kettle
   ____ a storm cloud
   ____ an animal in the grass

21. The sun going down behind the hill is ---
   ____ the end of a long story
   ____ an ice cube melting
   ____ daylight becoming night
   ____ a nickel in the parking meter
   ____ a hushed library

22. The elephant's trunk being raised is ---
   ____ old silverware
   ____ a honking car
   ____ a question mark
   ____ a flag going up the pole
   ____ a lifted trumpet blaring

23. The sled racing down the mountain was ---
   ____ a drop of water rolling down the side of a glass
   ____ ink on a sheet of white paper
   ____ a zipper unzipping
   ____ the swish of a turning jump rope
   ____ a line of stitching

24. Night filling the sky is ---
   ____ coal
   ____ a silent piano
   ____ a forgotten thought starting to return
   ____ a gigantic puddle
   ____ slowly increasing darkness

25. The streak of skywriting being made in the sky is ---
   ____ milk
   ____ a piece of string
   ____ a golfball that was just hit
   ____ whipped cream squirting out of a can
   ____ the hum of a washing machine
Please memorize this portion of the script and practice your presentation so that it can be given in a normal conversational tone. (Have a copy of the priming and directions available, in case you forget.) Remember, it is very important to gain the attention of the class and develop a desire to give their undivided attention to this task. IMPORTANT: It is appropriate to ask for questions and answers during the priming and directions. We are interested in what kinds of metaphors are preferred and this is not a test of knowledge. There are no right or wrong answers.

**PRIMING:** "When you want to again become friends with someone, after you had an argument, do you really 'bury the hatchet'? (Have a student answer.) If you only have a little money, do you actually have 'chicken feed'? (Have a student answer.) Do you know of anyone who is really 'tied to his mother's apron strings'? (Have a student answer.) Then, why do we talk like that? Why do we say things that are not really true? I think we say things like that when we are really trying to explain or describe something especially well.

When we are trying to describe something, we often will compare it to something we already know. Remember the joke on TV, when somebody says, 'Boy, it was cold today,' and then someone else says, 'How cold was it?', and then the person says, 'It was so cold that.... Well,
they were going to use some kind of description or comparison, and it probably wasn't going to be true, but we would still know that it was really cold. That is what this lesson is about. There are many ways to describe something and I want to find out what you would think would make a good description or comparison. The sentences we have are not as funny as the joke on TV, but they do show many different ways to describe something.

I am going to pass out your papers and then we will go through them. This is not a test, because there are no right or wrong answers. I am just going to find out what kinds of descriptions you like.

DIRECTIONS: Each of the items will be read as you follow with your copy of the test. After all choices for an item are read, please indicate your choice for the best metaphor by placing an 'X' in front of the phrase. Please mark only one response per item.
APPENDIX C

SCORING KEY FOR METAPHOR PREFERENCE TEST

There are twenty-five items on the test. To score the test, the number right will be the number of metaphors chosen. There are twelve responses that are literal; that is, they make the sentence a literal comparison. For purposes of scoring, if any of these are chosen, the item will be considered wrong.

The following items have a literal ending that could be chosen:

1. No
2. No
3. Water that goes up and down.
5. No
6. Many cars in one place.
7. An old wheel.
8. A vegetable.
9. No
10. No
11. Puddles everywhere.
12. Lightbulbs on tall poles.
13. No
14. No
15. Fudge sauce on vanilla ice cream.
16. No
17. A beautiful flower.
18. A quiet song.
19. No
20. An animal in the grass.
21. Daylight becoming night.
22. No
23. No
24. Slowly increasing darkness.
25. No
Please memorize this portion of the script and practice your presentation so that it can be given in a normal conversational tone. Remember that it is very important to gain the attention of the student and help him develop a desire to give his undivided attention to this task.

Thank you for coming to see me. You were one of the students chosen to participate in this test. It is based upon the test that you took in class. What I am going to want you to do is make up some of your own metaphors. It's not hard to do. For instance, if I said, "She is so dumb--," what could you make up to finish the sentence? Let me give you some ideas. If it were finished by saying, "She is so dumb that she is going to fail English," I would be telling the truth and saying it in a literal way, truthfully. But if I said, "She is so dumb, she needs a Seeing Eye Dog to get home," then I am trying to be creative, a little funny, and also explain how dumb she is in a different way but it still makes sense. Try this sentence-- A football game is... Good. I have a picture of a football game that's great. Now try this one. (Proceed with item 1 of the metaphor preference test).
Directions. Complete this sentence with your own idea of the best description you can think of. "Falling autumn leaves are..."

(Important, at any time it is appropriate to ask for questions. We are interested in what kind of metaphors are preferred and can be produced. This is not a test of knowledge.)
APPENDIX E

RESPONSE FORM FOR METAPHOR PRODUCTIONS

NAME ___________________________ DATE ____________
CLASS ___________________________

Write the response of the student on this form. Do it as quickly as possible and abbreviate if necessary. At the end of the interview, make any corrections to the copy if necessary.

1. __________________________________________
2. __________________________________________
3. __________________________________________
4. __________________________________________
5. __________________________________________
6. __________________________________________
7. __________________________________________
8. __________________________________________
9. __________________________________________
10. __________________________________________
11. __________________________________________
12. __________________________________________
13. __________________________________________
APPENDIX F

ANSWER KEY FOR METAPHOR PRODUCTIONS

DIRECTIONS: The following classifications are the most commonly used types of metaphoric grounds. The student responses will probably utilize one of these types. Read the metaphor produced by the student and determine what type of ground was used. If you believe that they have used a ground other than the ones cited, score the item as other. If the sentence is a literal comparison of some sort, score it as being wrong. The total score will be the number of metaphors that are produced.

METAPHOR TYPE:

1. COLOR ex. glowing sunsets
2. SHAPE ex. a long rope
3. SOUND ex. a stack of dishes crashing
4. MOVEMENT ex. a creeping caterpillar
5. CONCEPTUAL ex. the tire swing is "a favorable story"
6. COMBINATION ex. tossed confetti
7. LITERAL ex. a traffic jam is "many cars in one place"
APPENDIX G

SCRIPT FOR PRIMING AND DIRECTIONS FOR METAPHOR EXPLANATION PRIMING

Please memorize this portion of the script and practice your presentation so that it can be given in a normal conversational tone. Remember that it is very important to gain the attention of the student and help him develop a desire to give his undivided attention to this task. Please remember that it is appropriate to ask the students if they have any questions. It is also appropriate for you to ask questions to assist them in giving a clearer explanation. Questions such as: (a) Can you tell me more? (b) What do you mean by that? and (c) Could you say that some other way? Also, please remember to give praise at appropriate moments, but do not infer that one response is better than another by your praise.

(Remember Part II and Part III will be done in alternating fashion. After the student has produced a metaphor, you will immediately ask for an explanation for that sentence.)

DIRECTIONS: That was a good metaphor that you made up. I think it is as good as the ones on the test, don't you? Now, can you tell me something? What does 'falling autumn leaves' and _______________ have in common? Are they both telling about color? shape? size? movement? sound? a combination of these?

(Wait for the student to respond to each idea. When it seems that he has given an appropriate answer or the best he can do, return to the next metaphor production item.)
APPENDIX H

RESPONSE FORM FOR METAPHOR PRODUCTION EXPLANATION

NAME ______________________ DATE ______________________

CLASS ______________________

Listen to the tape and transcribe the responses of the student on this form. Listen to the tape twice before attempting to write the response. After writing the response, follow the evaluation procedures for the determination of metaphoric preference and record your answer on this form in the space provided after item number.

1. __________________________
2. __________________________
3. __________________________
4. __________________________
5. __________________________
6. __________________________
7. __________________________
8. __________________________
9. __________________________
10. __________________________
11. __________________________
12. __________________________
13. __________________________
14. __________________________
15. __________________________
16. __________________________
17. __________________________
18. __________________________
19. __________________________
20. __________________________
21. __________________________
22. __________________________
23. __________________________
24. __________________________
25. __________________________
APPENDIX I

ANSWER KEY FOR METAPHOR PRODUCTION EXPLANATIONS

DIRECTIONS: In order to evaluate the appropriateness of the student explanation of the ground of the topic and vehicle of the metaphor, please refer back to Appendix F for the classification system for metaphor grounds. Write your evaluation of the student explanation (Appendix H).
APPENDIX J

SCRIPT FOR PRIMING AND DIRECTIONS FOR METAPHOR PREFERENCE EXPLANATION PRIMING

Please memorize this portion of the script and practice your presentation so that it can be given in a normal conversational tone. Remember that it is very important to gain the attention of the student and help him develop a desire to give his undivided attention to this task. Please remember that it is appropriate to ask the students if they have any questions. It is also appropriate for you to ask questions to assist them in giving a clearer explanation. Questions such as: (a) Can you tell me more? (b) What do you mean by that? and (c) Could you say that some other way? Also, please remember to give praise at appropriate moments, but do not infer that one response is better than another by your praise.

DIRECTIONS: This is the last part of the test. You have been working hard and I appreciate it. This part of the test is about explaining why you chose the second part of the metaphors on the test. It is really no different than the explanations that you gave for the metaphors you made up. For instance, if you had chosen "Falling autumn leaves are pouring raindrops," you would tell me that autumn leaves fly around in the air and then fall to the ground and pouring raindrops might fly around if it were windy and they fall to the ground, too. Any questions?
APPENDIX K

RESPONSE FORM FOR METAPHOR PREFERENCE EXPLANATION

NAME ___________________________ DATE _____________________

CLASS ___________________________

Listen to the tape and transcribe the responses of the student on this form. Listen to the tape twice before attempting to write the response. After writing the response, follow the evaluation procedures for the determination of metaphoric preference and record your answer on this form in the space provided after the item number.

1. ________________________________________________________
2. ________________________________________________________
3. ________________________________________________________
4. ________________________________________________________
5. ________________________________________________________
6. ________________________________________________________
7. ________________________________________________________
8. ________________________________________________________
9. ________________________________________________________
10. ________________________________________________________
11. ________________________________________________________
12. ________________________________________________________
13. ________________________________________________________
14. ________________________________________________________
15. ________________________________________________________
16. ________________________________________________________
17. ________________________________________________________
18. ________________________________________________________
19. ________________________________________________________
20. ________________________________________________________
21. ________________________________________________________
22. ________________________________________________________
23. ________________________________________________________
24. ________________________________________________________
25. ________________________________________________________
APPENDIX L

ANSWER KEY FOR METAPHOR PREFERENCE EXPLANATIONS

DIRECTIONS: In order to evaluate the appropriateness of the student explanations of the ground of the topic and vehicle of the preferred metaphor, please refer back to Appendix F for the classification system for metaphor grounds. To further assist you in your evaluation, one possible explanation for the ground of the preferred metaphor is provided. Please carefully consider the explanation given by the student. The fact that the student has a different explanation from one that seems logical to you does not necessarily make it incorrect. For example, it is possible for there to be an explanation based upon perceptual or conceptual grounds.

Write your evaluation of the student explanation on the response form for metaphor preference explanation (Appendix K).

1. Falling autumn leaves are ---
   color_______ glowing sunsets
   sound_______ shuffling feet
   movement____ pouring raindrops
   concept_______ old photographs
   combination____ tossed confetti

2. The snowflake is ---
   concept_______ a gentle kiss
   movement_______ a twirling ballerina
   combination____ a falling paper airplane
   color_______ shining teeth
   sound_______ a silent street

3. A wave in the ocean is ---
   shape_______ a curl of hair
   concept_______ a burst of energy in a tired runner
   sound_______ a stack of dishes crashing
   movement_______ a lion springing in attack
   literal_______ water that goes up and down
4. After a week of clouds, the sun was ---
   movement... a baby playing peek-a-boo
   shape..... a beachball
   color...... orange juice
   combination rosiness returning to a sick person's face
   concept... a birthday party

5. The child's blue eyes watching the circus were ---
   color______ skies without clouds
   movement__ jumping sneakers
   concept___ fish eating the bait
   combination lively dancers
   shape_____ big buttons

6. A traffic jam is ---
   literal____ many cars in one place
   sound_______ a barnyard of noisy animals
   concept____ getting your jacket zipper stuck
   half-way
   shape______ dominoes in a row
   movement___ a creeping caterpillar

7. The tire swing is ---
   movement__ a windshield wiper
   shape_____ a Cheerio
   sound_______ a squeaky door
   literal____ an old wheel
   concept___ a favorite story

8. A celery stalk is ---
   sound_______ crunchy snow
   concept_____ a splash of water
   shape_______ an upside-down mop
   literal____ an vegetable
   color_______ a lawn of grass

9. The peeling banana is ---
   sound_______ cloth tearing
   combination daisy petal drooping
   movement__ a person undressing
   color_______ buttered popcorn
   shape_______ a sliver of moon

10. The popped red balloon is ---
    shape_______ a limp washcloth
    color_______ a bottle of ketchup
    concept____ a washed-away sandcastle
    sound_______ an empty auditorium after a concert
    combination an apple peel
11. The streetlights along the dark highway are ---
   color______ fireflies in the air
   literal______ lightbulbs on tall poles
   shape_______ a connect-the-dots puzzle
   movement____ guards standing very still at attention
   concept_____ lonely people

12. Through the window, the rainy day was ---
   concept______ a morning when you forget your lunch
   sound_______ people tiptoeing on the roof
   literal______ puddles everywhere
   shape_______ an out-of-focus photograph
   concept_____ an old person's hair

13. The volcano is ---
   concept______ a man who is very angry
   combination tomato sauce boiling over the sides of
   color______ a bright fire engine
   sound_______ a roaring lion
   movement____ a whale spouting water

14. The painter's first stripe of white paint on the old
   gray wall is ---
   sound_______ a slurp of soup
   color______ salt
   movement____ long hair being brushed
   combination____ a falling star
   concept_____ sunshine after a rainy day

15. The chocolate sundae is ---
   movement____ skiers moving slowly down slopes
   concept______ getting to stay up past your bedtime
   literal______ fudge sauce on vanilla ice cream
   color______ a zebra
   shape_______ a big hill

16. The sails on the riverboats are ---
   shape_______ shark fins
   color______ pieces of chalk
   sound_______ pages being noisily turned
   movement____ rollerskaters going by
   combination____ wings of moths

17. The red rose bud is ---
   color______ cherry cough syrup
   concept______ a much loved child
   shape_______ a sock wadded up
   literal______ a beautiful flower
   movement____ a ballet dancer
18. The record playing softly on the phonograph is ---
literal_____ a quiet song
sound_____ a purring kitten
concept____ a summer breeze
shape_____ a Frisbee
color_____ ink

19. The hatching chick is ---
combination a burst of sunshine
color_____ a bright lemon
movement___ a kernel of popcorn popping
sound_____ tapping fingernails on a door
concept___ a child let out for recess

20. The rattle snake was ---
shape_____ a long rope
movement___ soap sliding along the bathtub
sound_____ a hissing kettle
concept____ a storm cloud
literal____ an animal in the grass

21. The sun going down behind the hill is ---
concept____ the end of a long story
movement___ an Ice cube melting
literal____ day light becoming night
shape_____ a nickel in the parking meter
sound_____ a hushed library

22. The elephant's trunk being raised is ---
color_____ old silverware
sound_____ a honking car
shape_____ a question mark
movement___ a flag going up the pole
combination a lifted trumpet blaring

23. The sled racing down the mountain was ---
movement___ a drop of water rolling down the side of a glass
color_____ ink on a sheet of white paper
combination a zipper unzipping
sound_____ the swish of a turning jump rope
shape_____ a line of stitching

24. Night filling the sky is ---
color_____ coal
sound_____ a silent piano
concept____ a forgotten thought starting to return
shape_____ a gigantic puddle
literal____ slowly increasing darkness
25. The streak of skywriting being made in the sky is ---
   color______ milk
   shape______ a piece of string
   movement____ a golfball that was just hit
   combination whipped cream squirting out of a can
   sound______ the hum of a washing machine
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