THE EFFECTS OF MUSIC SEGMENTS ON THE LISTENING COMPREHENSION OF SECOND GRADE STUDENTS IN A STORYREADING SITUATION

DISSERTATION

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Major Field: Early and Middle Childhood Education

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CHAPTER I

INTRODUCTION

Nature of the Problem

Comprehension, the process by which the brain derives meaning from the stimuli it receives, is a major area of interest to psychologists and educators as illustrated by recent books and articles; "On Comprehension" (Evans, 1984), "Effects of Task-Induced Cognitive Operations on Comprehension and Memory Processes" (Fredriksen, 1972), Reading Comprehension Assessment: A Cognitive Basis (Johnston, 1983), and Cognitive Processes in Comprehension (Just & Carpenter, Eds., 1977). The ability to read and listen with comprehension and to extract meaning from text and discourse is vital to the success of children in school and later as adults. As the body of knowledge which must be transmitted during the finite period of school increases, it becomes imperative to determine the most effective methods of presenting material for individual comprehension. An understanding of how the human brain acquires knowledge is necessary if educators are to successfully fulfill their roles as facilitators in the learning process.

Cognitive psychologists, following the works of Piaget, maintain that comprehension is an interactive process of continual assimilation and accommodation (Bruner, 1983; Fredriksen, 1972; Vygotsky, 1962). Works in the fields of artificial intelligence and specific brain dysfunctions have lent support to the cognitive approach to learning (Rumelhart & McClelland, 1980; Rumelhart & Norman, 1983). Comprehension is a complex and dynamic concept that reflects the nature of the human brain.

"The system of knowledge in our heads is organized into an intricate and internally consistent working model of the world, built up through our interactions with the world and integrated into a coherent whole" (Smith, 1982, p.54). This is one definition of cognitive structures that attempts to explain how knowledge is acquired and organized in the brain. The definition accounts for individual differences of perception and reaction. The salient points of this definiton are the processes, "through interactions with the world and integrated into a coherent whole". Smith is proposing that acquisition of knowledge is predicated on a responsive involvement with all aspects of environment surrounding the individual. Smith also maintains that this new knowledge must be incorporated into that which is resultant from the individual's prior experience. This must be accomplished in a way that reconciles conflicting perceptions without

eliminating the value of either the prior or incoming knowledge. The resultant personal model must be internally consistent at any given moment, yet remain flexible and responsive to the continual influx of knowledge that occurs in normal human existence.

Smith has described this model as an explanation for the internal knowledge system. Rumelhart (1980) has labeled the component elements of this model as schema, or building blocks of cognition. In his contributions to various studies at the Center for Human Information Processing, Rumelhart has refined his theory of comprehension and cites the effects of prior knowledge and context on the perceptions and comprehension of individuals (Rumelhart & McClelland, 1980).

Interactions that are not contrived seldom occur between a human and an isolated stimuli. The act of reading, for example, contains the visual elements of text and illustration at the same time as aural elements of surrounding noise are present. The body is also registering the tactile sensations induced by the book and the position of the reader, olfactory reactions to smells in the environment, and possibly the taste of snacks or refreshments. It is possible for humans to focus attention on one stimuli at a time, and block conscious reception of others. That does not mean the others do not exist and will not intrude on the perception if the concentration

of the receiver loses focus. The fact that the human body comes equipped with five receptors, capable of simultaneous sensing and transmission, leads one to conclude that multi-sensory input is normal. In addition, the sensory information received must always interact with the prior knowledge and experiences of the individual. This is not to say that incoming stimuli have equal value or that a total revision of prior conceptions is necessary for each reception; for in many instances, the stimuli are repetitions of those previously experienced.

The world is naturally integrated into a coherent whole. Phenomenologists maintain that the individual perceives self and environment on several levels at any given moment (Husserl, 1970). The individual can view self as active or passive agent, sender or receiver, object or subject. The shifting of self perception combined with the continual influx of visual, oral, tactile, olfactory, and auditory information, interpreted in the light of prior knowledge and experience, creates a human ecology. Ideas and actions that will, in turn, influence perceptions and reactions are the result of this integrated process.

The past five years have seen public condemnation of educational methods in the United States (Boyer, 1983; The Commission for Excellence in Education, 1983; Sizer, 1985; and Goodlad, 1984). The report by the Commission for Excellence in Education (1983) initiated a

re-evaluation of education at all levels. A need to revise and improve educational techniques has been recognized by the educational community and is exemplified by the changes taking place in teacher education (Holmes Group, 1986; Carnegie, 1978). If there is to be meaningful improvement in teaching, methods of instruction that can increase comprehension must be explored. An integrated approach to the transmission of information needs to be implemented.

Children are exposed to sophisticated media presentations on television. Estimates of the amount of time spent viewing and listening to television vary greatly according to age, economic levels, and geographic location; but an average figure would indicate that it is in excess of four hours daily for elementary children as reported in an ABC survey, July 1986. Television provides visual action, oral text, and supportive sounds against a visual background designed to enhance the text. Many programs only require passive reception of the presentation. The critically acclaimed educational offerings produced by the Children's Television Workshop, Sesame Street and The Electric Company also include opportunities for viewer participation (TV Guide, 1986; TIME, 1985).

The desire for increased stimuli by children when receiving messages is evidenced in two other notable examples. Music videos have gained greatly in popularity

in recent years. It is no longer enough to listen to music; a visual representation is also desired. Another example is the recent production of cassettes with a reading of the text and musical accompaniment to be played with picture books that a major toy manufacturer marketed in the past year. This provides the child with an oral text, pictures, and music in a manner similar to television programs, while adding the opportunity to match sounds with symbols. The commercial success of these ventures is indicative of a trend toward multi-media presentations.

Language is a medium by which people communicate. Language is comprised of productive elements, writing and speaking; and receptive elements, reading and listening. In many schools reading and writing are designated as separate subject areas, reading and language arts. Listening is seldom a subject for specific instruction, although much of the time students spend in schools is occupied with listening to teacher lecture (Goodlad, 1983). Speaking is often in the form of reading aloud or answering questions, and is not encouraged continually because of classroom management considerations. It would seem reasonable to assume that language instruction could be enhanced by providing more than one stimulus, and attempting to integrate the subjects in a more natural manner, as seen in recent approaches to the language arts (Fox and Allen, 1983).

Language shares many similarities with the arts. There are productive and receptive elements of music, dance and movement, and visual art in addition to a necessary communication element. It is possible for these subject areas to integrate and support each other in many classroom applications such as choral reading and singing or dramatic productions (Figure 1). It is also possible that these interactions and the integration of subjects could increase comprehension by providing a more coherent whole in the manner in which the material is presented.

Language is, by its very nature, interactive. Fox and Allen (1983, p.15) maintain that "communication implies that there is someone sending a message and someone receiving that message". Savignon (1983) avers that communicative competence is a dynamic concept dependent on the negotiation of meaning between two or more people. Using the concept of message proposed by Vygotsky (1962) as the intent of the sender, it is possible to expand on current notions of communicative interactions. The sender formulates the intent and conveys it to one or more receivers who will modify that intent upon reception in relation to prior experiences. If the sender and receiver maintain reciprocal contact, the receivers will send a message in return to confirm correct perception of the original intent. If the sender and receiver have no means of reciprocal communication, then the sender must

Language and Art Interaction Model

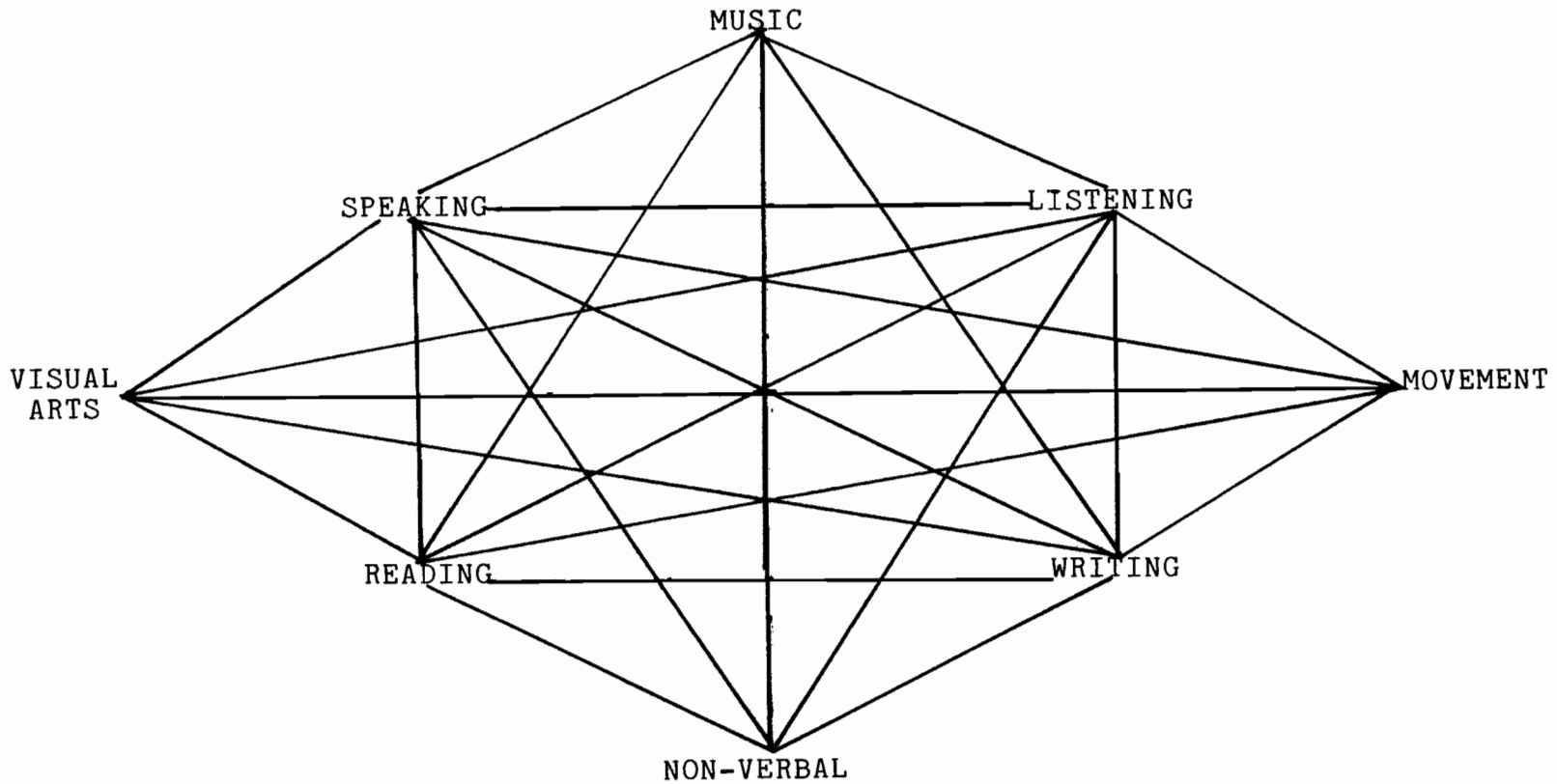


Figure 1

accept that the original intent will be modified upon reception in a manner consistent with the intent of the sender, or consistent with the schema of the receiver, and they may not always be consistent. Linguistically there are several forms this interaction may take such as author and reader, speaker and listener, conveyer and viewer. The sender/receiver interaction is also applicable to the arts with performers and audiences, composers and choreographers with performing artists, and visual artists to viewers. Communicative interactions only require a sender and receiver in contact and the transmission of a message or intent. The mode or method of conveying the intent is not limited by the definitions used here.

Rumelhart (1980) has cited two reasons for the lack of comprehension: the receiver has the knowledge to fit information into a theory or unit of expanded knowledge, but needs more clues to determine the applicable knowledge, or the receiver has fit the information into his own pattern of knowledge which was not that intended by the sender. It is possible that the addition of another medium of stimuli, simultaneously presented with the message, could provide the necessary clues to identify the unit of knowledge necessary, or to clarify that which is intended by the sender. This enhancement of the negotiation of meaning inherent in communication would then facilitate comprehension.

Reshaping the Textual Meaning

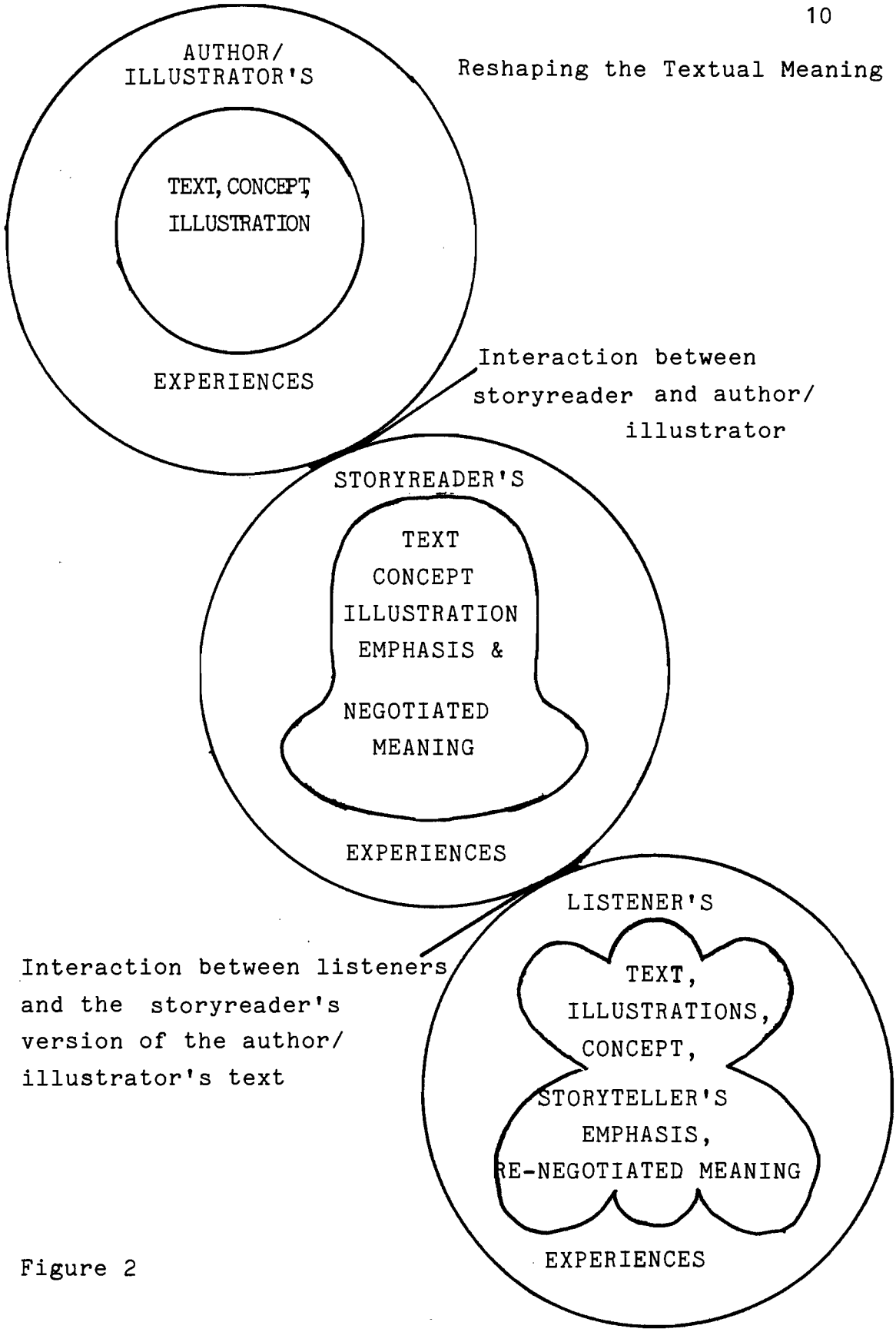
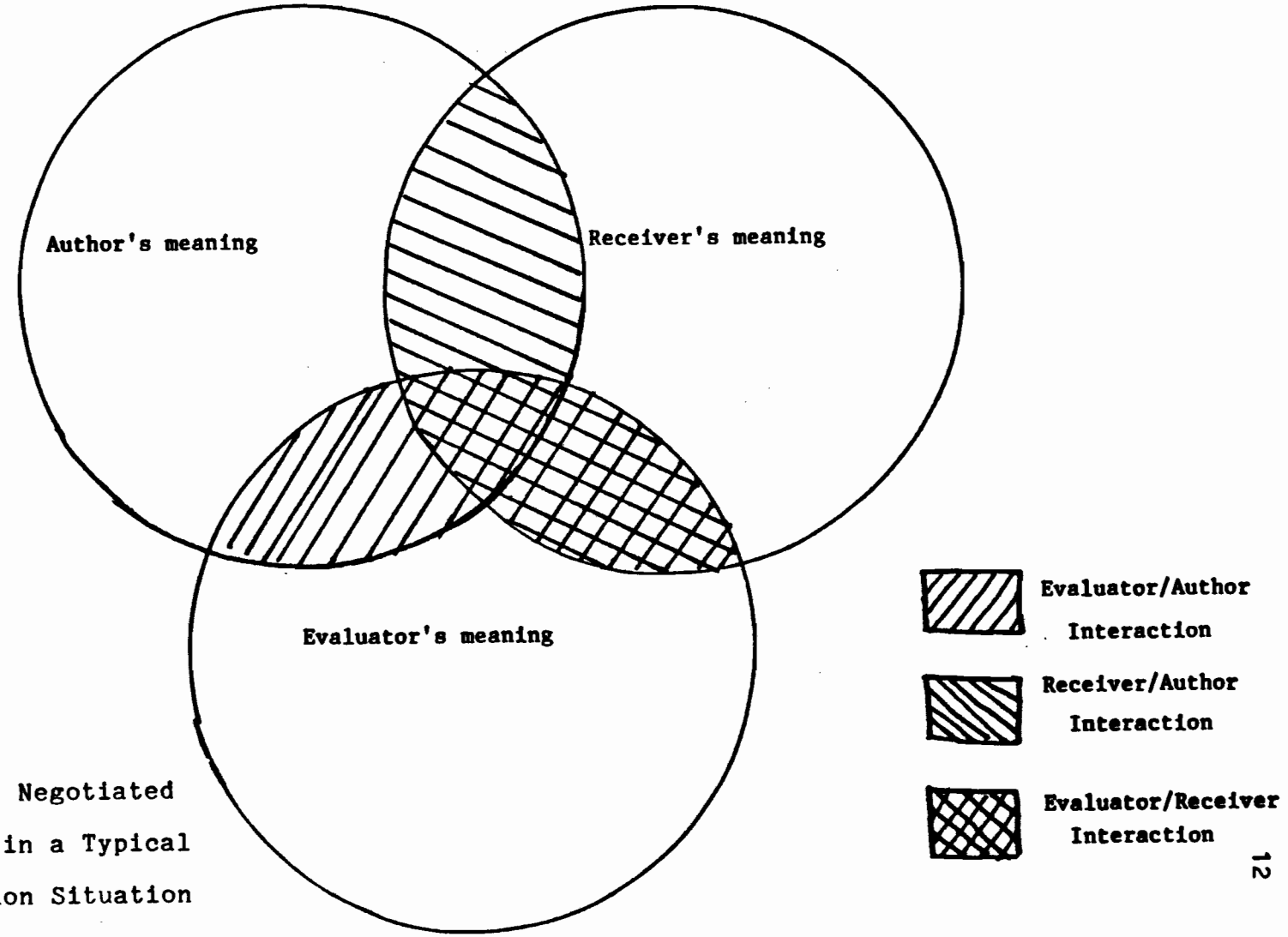


Figure 2

Storyreading, reading stories aloud to students, is a language activity that occurs in many primary classrooms. The storyreading process is an example of the communicated message passing through a moderator or interpreter before reaching the final recipient (Figure 2). If one is considering the comprehension of a story to which students listen, one must examine the oral presentation as well as the text involved. The emphasis, inflections and pauses used by a story reader can change the value of the story events and even change the intended meaning of the story, although the text and pictures remain constant. What comes out of the storyreader's mouth is the meaning of the story negotiated between author and storyreader.

Allowing students to freely recall what they have heard would yield the elements of the story that the child had processed into memory. Free recall is one of the few methods of eliciting information that does not influence the contributor. Oral production enables this method to be successfully utilized in the earliest grades without placing reliance on student writing abilities. Multiple choice tests, short answer assessment, and even recall with specific probing questions are indicators of what the evaluator perceives as material of meaning or value, and can lead the contributor to express views and information he had not personally deemed important (Figure 3). If it is desirable to determine what an individual comprehended



Areas of Negotiated Meaning in a Typical Evaluation Situation

Figure 3

in a story, a method should be used that allows the individual to select what is retained or rejected, and to establish his own assignment of values to the story or message he received. The pertinent communication is between author and reader/listener, while the evaluator plays a moderating role and may cause a re-negotiation of meaning.

Recent research by Golden (in press) and van Dijk (1982), has identified the episode as an important element of story structure. Black and Bower (1979) concentrated on the cognitive uses of the episode. They have determined that episodes are a necessary portion of the chunking process of memory. One aspect of the information processing theory of learning is the need to separate incoming information into small related segments of knowledge that the brain can accept and integrate into the schema already present. These small units of knowledge are known as chunks. Story episodes are chunks of information that naturally exist in the form most easily processed, or integrated, by the brain. Black and Bower have identified this use of episodes as necessary for the processing of oral discourse as well as written text. The episode is also a necessary portion of the retrieval, or recall process, and has been identified as one of the elements that aids recall. Story episodes, which occur naturally in text, would seem to provide a method of

measuring comprehension by assessing the portions of oral or written text processed by the receiver. A summative evaluation of the total number of episodes would provide a quantified means of comparing the comprehension of two or more students.

Comprehension, then, is the perception of a message by an individual in light of his previous experiences, his body of personal knowledge, the surrounding environment, the type of message, and the mode of delivery. As educators we must constantly seek ways to enhance this comprehension of message by our students to facilitate learning. Storyreading provides an opportunity to examine one method of influencing listening comprehension. The addition of music or sound effects to oral text may increase comprehension in a listening activity by including one more stimulus as a clue to the message.

Statement of the Problem

The problem is to determine if listening comprehension can be enhanced by presenting an integrated message to the receiver. Specifically, this study will utilize a two group post-test only design in which a control group hears a tape-recorded reading of a story and an experimental group hears the same rendition of the story with music added at intervals. Each subject will be given an opportunity to recall the story for tape-recording. Each subject's recall will be transribed completely.

The transcriptions will be read and specific episodes will be identified and counted. The number of episodes recalled by the members of each group will be compared.

Research Design

This study involves a quasi-experimental application of the two group post-test only design described by Campbell and Stanley (1967). One group will be a control hearing only the text of the story, the other will be the experimental group who will hear the same story with music passages interspersed in the text. The music will only be played at the start of a page of text, before the reading begins, so there will be no interference in message auding. The story will be tape-recorded on two tapes simultaneously, with the music added to one later. This will ensure that both groups hear the text of the story in an identical manner. This method of presentation will allow the students in the experimental group approximately 60 to 90 seconds of additional time to view the illustrations for each page of text. All subjects will have visual access to the illustrations during the reading of the text.

It is anticipated that the addition of music will fill one of two major roles. Either there will be a direct positive effect on the reception of the story or the break from text will provide the receivers an opportunity to process the material they have just heard.

Subjects will be treated in intact classrooms which are randomly assigned to treatment groups by drawing numbers from a hat. Ten subjects will be randomly selected, also by drawing numbers, from those in each classroom. This will complete the assignment of subjects to groups.

Each class will participate in a storyreading experience. At the conclusion of the story, each individual in the class will have an oral recall of the story recorded on tape. Subjects will only receive one general prompt question, and no probing questions. Subjects indicating prior experience with the story will participate in the entire procedure, but their recalls will be dropped from consideration later. Each subject will be identified only by a school name and subject number in order to comply with the exemptions of the Human Subjects Review Committee.

The taped recalls of each child will be completely transcribed at a later date. These transcriptions will be evaluated for the number of story episodes that each contains. The number of episodes recalled by those subjects receiving the treatment with music will be compared with the number of episodes recalled by subjects who heard the story alone.

A storyreading experience with music and student listeners requires the selection of a story, music or melodic lines, and a population of students from which to draw a sample of listeners.

The story chosen for this study is the 1985 Caldecott Award winning picture book, St. George and the Dragon retold by Margaret Hodges and illustrated by Trina Schart Hyman. There are several reasons for this selection:
(a) the story is seldom heard, but follows a literary structure that is familiar with other folk tales and heroic legends;
(b) as a recent publication, there was less likelihood of it appearing on the shelves of the school library;
(c)the award citation is helpful to convince those unfamiliar with children's literature of the book's value;
(d) the story contains multiple episodes providing a wide range of possible scores on the recalls;
(e) The three main characters; George, Princess Una, and the dragon, are clearly defined and individually unique in the story, making it possible to select music which reflects the personality of the character.

The music was written especially for the story by the researcher who has a degree in music. Eight years of teaching music have provided many opportunities for the composition and arrangement of music. There is an element of artistic inspiration necessary for composition that was present in the illustrations and text of St. George and the Dragon. A separate and distinct melodic theme was composed for each of the three main characters; George, Una, and dragon. The themes were each written in a

different musical style to make them more easily distinguishable. There was no intention of requiring subjects to recognize styles, merely the character who was associated with the theme. These themes could then be played prior to the page of text on which the character appeared. It was possible to change modes from major to minor and vice versa to reflect any positive and negative action in the story. In instances where more than one character was the focus of action, it was possible to interweave the melodies of those appearing. The music was performed on a synthesizer to create the effect the composer felt was most reflective of the intent of the text.

Second grade students from the international schools in northwestern Europe were selected as the population for four reasons:

(a) second grade students are not all fluent in reading and are read to more often than older students, thus storyreading is more of a routine occurrence in their classroom lives;

(b) this researcher has spent almost her entire teaching career in the international schools;

(c) the administrators of the international schools were willing to have their schools participate in this study without consideration of remuneration;

(d) the range of cultural and linguistic backgrounds, present in an environment where English is the medium of

communication for approximately six hours per day, will generate a larger body of future research questions that can be examined from the same collection of data. This range of backgrounds may cause some variance in the responses, but this will be discussed more fully later. One of the purposes of this study was to conduct research that would be of benefit to the more than seven hundred English medium international schools in the world. These schools have seldom found their unique problems an educational priority.

Research Hypothesis

The use of music segments related to and played before each page of an illustrated children's story presented in a storyreading situation will have a positive effect on the cumulative listening comprehension of second grade students.

Terms

Advance Organizers- Sometimes called indicators, they are any means by which an author, storyteller, speaker, or other producer of communication gives clues to the content of the message prior to actually conveying the message to the receiver.

Comprehension- "relating what we attend to in the world around us to what we already have in our heads." (Smith, 1982, p.53).

Episode- A series of events within the substructure of a story. The episode consists of a goal, an attempt, and an outcome; set off by linguistic and non-linguistic markers (Golden, 1986).

International Schools- Private, non-profit centers which educate children from nursery school through grade 13 or any group within those perimeters. The schools usually conduct instruction in English with language instruction provided in other languages, usually French and one other language. The students in the schools are usually dependents of government and business representatives who are currently residing in the host country, which is not their native country.

Listening Comprehension-the process and product of successfully extracting meaning from an oral text or discourse. To paraphrase the Smith definition above, to relate what we hear in the world around us to what

we have in our heads.

Music segments- short intervals of music, lasting from 15 seconds to slightly more than a minute; and complete with melody, harmony, and cadences.

Music Themes- based on the Wagnerian leitmotif, this is a means of identifying specific melodic figures with individual characters or ideas.

Recalls- Free oral recalls consist of allowing the subjects to recall or retell as much of what they have heard as they possibly can. Leading questions to aid specific recall are not allowed, although general prompts such as "Can you remember anything else?" are. The use of tape recorders allowed recalls to be preserved without waiting for a scribe, or forcing the subjects to write.

Storyreading- the act of reading a story aloud to an audience and using timing, timbre, and intonation to enhance the storyreader's perceived meaning of the text.

CHAPTER II

LITERATURE REVIEW

The Problem

The problem is to determine if listening comprehension can be enhanced by presenting an integrated message to the receiver. Specifically, this study will utilize a two group post-test only design in which a control group hears a tape-recorded reading of a story and an experimental group hears the same rendition of the story with music added at intervals. Each subject will be given an opportunity to orally recall the story for tape-recording. Each subject's recall will be transcribed completely. The transcriptions will be read and specific episodes will be identified and counted. The number of episodes recalled by the members of each group will be compared.

Comprehension

This study has initially utilized the definition of comprehension proposed by Smith (1982, p.53) "relating what we attend to in the world around us to what we already have in our heads". The isolation of this definition leads to the assumption that comprehension is a cognitive process

involving both internal and external factors. The nature of these factors may be categorized as cognitive, affective, or psycho-motor, the domains of of mental processes.

Rumelhart (1983) has conceived of "models of the outside world" called schemata. His extensive work in cognitive processes has utilized the schema theory for several years. Rumelhart maintains that "to process information with the use of schemata is to determine which model best fits the incoming information" (1983, p.42). This process is not static, and the schemata are constantly changing to reflect the new information received by the brain in the context of a sensory world. Comprehension demands that the schemata maintain a process of data evaluation and a communication network to other schemata to achieve the best fit between prior experience and incoming information.

The schemata theories have been examined in language and reading studies. Spiro (1980) cites his own prior research and an unpublished field test to support the validitiy of schema theory. He has listed schema related individual differences in processing style, as well as specifying his own conception of the roles schema play in mental processes. Spiro's work has all supported the schema theory, and he cites other major researchers in the field of reading comprehension whose research results either formed the base for study, or conclude that schema

play a major role in comprehension (Bransford & Johnson, 1972; Anderson, Reynolds, Goetz, & Schallert, 1976; and Fredriksen, 1975). Steffenson and Chitra (1984) have studied the effects of schema in reading in a second language situation by presenting natives of India and the United States with two passages concerning a wedding; one in the reader's native country and one in that of the other country. The results were determined through recall, and each group was more detailed and accurate when recalling the scenario most consistent with their own culture. In many cases responses included false inferences drawn from the textual information due to cultural diversity. This directly supports Spiro's conclusion that "In the process of comprehending discourse, what is understood and stored frequently includes not only what is directly stated, but also what seems to follow from that information (p.254; [emphasis added]).

The Steffenson and Chitra study introduces the confounding nature of culture to the comprehension process. Anthropologist Edward T. Hall (1966, 1973, & 1977) cites several examples of individuals who perceive events and their meaning differently due to prior knowledge, experience, and attitude. When Hall examined some of the individuals more closely concerning their perceptions and reactions, he discovered that specific elements of the situation had been either totally ignored or given more

importance by one of the participants, based on cultural values. Some consistent examples include the perception of time and promptness, the use of space, physical attitude while speaking, role of natural phenomena and emotional reactions.

Given the chosen population for this study, the cultural aspect of comprehension is of major importance. Urquhart (1984) determined that the organization of the text itself will reflect cultural factors; and the more familiar text will influence the comprehension of the reader. Bernhardt (1986) cites her earlier conclusion that the ability to visualize and relate to the text were more important in comprehending than mere linguistic proficiency (p.99). Wallace (1986) addresses the specific problems encountered by English second language (L2) learners at all ages. She maintains that specific story types, or "genres", are more easily followed than others. "There seems to be a consensus both within and across cultures about the conventional roles of characters in stories, particularly in fairy and folk tales....It would seem, too, that folk stories have some universal features, not just of content but of structure....Arising as they do from an oral tradition, it may be that the structure of folk tales is a cultural universal, reflecting the way all of us best remember stories....The implications of such findings are that the classic folk tales offer the most predictable

genre for linguistic and cultural minority readers, whether children or adults, in moving into L2 literacy; and because they are originally based on an oral tradition, children and adults who are illiterate in their first language, but come from an oral culture, are also likely to recognize the genre. From hearing similar stories read aloud they will, for example, anticipate a typical repetition of similar events, often three or four times....While more sophisticated stories adopt conventions such as the flashback or story within a story format, another advantage of folk tales for early readers is that they have a clear linear structure, describing a sequence of events, which are highly predictable in their ordering and content." (p.30). The choice of story for the study is reinforced by this opinion. The folk tale of the dragon slayer is found in many cultures and will thus provide an easily understood text for the listeners.

Age is a factor in the comprehension process. There are definite developmental stages of socialization, that by logical extension include some of those aspects of culture that are assimilated by interpersonal interactions. Piaget (1959) concludes that the stage of collaboration and argument begins after the age of seven. This is roughly concurrent with the progression to concrete operational thought, the end of ego-centric speech and a general awareness of the larger world intruding into the

thought process of the child. Piaget maintains that at this age, children develop inner mental systems and coherence in thought. The need for argument, or verbal social interaction is deemed necessary to increase the reflexive thought processes. The process of formulating a consistent internal system of knowledge cannot begin until this time, because the child is able to accommodate simultaneously inconsistent and contradictory conclusions. It would be logical to conclude from this that social/ cultural influences on the thought processes of the child will be more pronounced after the age of seven when he requires more interaction to support his own rate of development. As a coherent system of thought is developed, and logic becomes possible, the social and cultural information received from mentors and peers will form an integral portion of the body of knowledge that is embedded in the child's schema.

Age is cited as a factor in thinking and understanding by Piaget (1959) and Bruner (1983). Spiro (1980) mentions that some students do not have schema for specific situations because they have not encountered anything of the same nature previously. Lack of age implies lack of experience. There is also a direct relationship between age and language as noted by Vygotsky (1962), Bruner and Piaget. Although a child has acquired a communication competence in the native language by the age of three,

some particular aspects of language take several more years for for mastery, and some complicated linguistic features will not be within the child's range of use until about twelve years of age. Language authorities maintain that language and thought are inextricably tied together in some manner (Britton, 1973; Halliday, 1975; Vygotsky, 1962). Slobin (1979) qualifies this slightly in his statement, "It will become clear that human cognition is influenced by language, but it is not formed by language" (p.144). Thus he has allowed for other factors such as experience and culture to affect the cognitive development of the child.

The choice of second grade students, typically seven years old or older, will provide a sample response from children in a transitory stage of thought processes, language abilities, and social/cultural affiliations. Because of the ego-centric nature of children until about the age of seven, there will be less cultural influence than there might be with an older class.

Bernhardt (1986) sums up the argument in favor of comprehension as a complex process involving more than the demonstration of skills and factual recall in her review of models of second language reading comprehension. "It is clear from all the models that the comprehender is an active

participant in the comprehension process who perceives and selects features of the text and features of the world at large for processing and synthesizing." (p.99, emphasis from Brenhardt).

Listening Comprehension

Listening comprehension, when viewed in the light of the operational definition of comprehension, is the interactive cognitive/thought process that follows the reception of sounds and attempts to give meaning to the sound.

There are internal and external factors that affect listening abilities and comprehension. Rumelhart and McClelland (1980) determined that speech perception was dependent on context. In a typical listening interaction, the context would be defined by the place in which the listening occurred, the dress and manner of the speaker, the number of listeners addressed simultaneously, the time of day, the listener's social/emotional relationship to the speaker, and the need or desire of the listener to participate in the experience. In an article describing factors that influence listening, Samuels (1984), lists four external factors that affect listening comprehension; topic of discourse, sensitivity of the speaker to the listeners, clarity and effectiveness of the speaker, and context (p.184). Topic of discourse would logically have an effect on the listening comprehension of students; if

they are interested they will listen, if not they will not bother. Studies by Asher (1980) have illustrated the impact topic interest has on reading comprehension; motivation and prior knowledge are the two main factors. These two factors would also apply to a listening situation. A sensitive speaker will encourage listener responses of either vocal or physical reactions. Ur (1984) has written that speaker segments need to be brief, and listeners need to move in response if they do not speak. A sensitive speaker will address the mood of the audience as well as the topic chosen for presentation. Speaker clarity and effectiveness would include the repetition of portions of the discourse that did not receive a clearly understood response. This form of oral text review is on the same order as the review of written text to which Smith (1982) refers as an aid to reading comprehension. Unfortunately, oral text that is not electronically recorded is impossible to reproduce exactly as the initial product. The speaker will try to repeat, but will edit in an attempt to make the oral text more understandable to the audience. Clarity, diction, and a precise choice of words,as well as the voice level of the delivery all affect the listener's perception of the ease with which the speaker can be understood. The context of the listening experience has already been discussed.

Listening and reading comprehension are often compared due to their similar receptive nature, and recently there has been more attention to the primacy of the receptive skills in second language teaching (Joiner, 1986). Gambrell (1980) concluded that "listening and reading comprehension depend on the same basic process" (p.8). Joiner also points out that "Viewing listening as the oral counterpart of reading permits a comparison of these skills in order (1) to determine if such a juxtaposition can yield new insights into the two processes and (2) to explore the possibilities of applying the teaching strategies of one of the receptive skills to the other" (p.45).

There are some differences between the two skills that must not be ignored. Varnhagen, et al. (1982) remind us that "Listening is an experimenter-paced task and doesn't allow for reinspection of the text as reading does. As a result, listening may require more efficient schema operation to aid in encoding and comprehension" (p.4).

In addition to the factors already listed that can affect listening comprehension, Coakley and Wolvin (1986) list the internal factors of self-concept and receiver apprehension. Their review of current literature on listening cited examples of the cultural influence felt by the individual while listening. Good listening is seldom rewarded which can result in low self-concept for listeners who perceive it as an unnecessary and profitless activity.

Receiver apprehension is caused by a fear of not understanding the message being sent. This apprehension is present regardless of the clarity, content, or frame of reference of the speaker's message.

Coakley and Wolvin (1986) have also developed a taxonomy of listening functions. This includes discriminatory listening, comprehensive listening, therapeutic listening, critical listening, and appreciative listening. This last definition is the most appropriate for this study because it includes "Listening to music, to a speaker's language style, to a movie or stage production, to environmental sounds, or to a television presentation" (p.20). It is open to question whether or not all of these activities fall into the same category. According to the definition, the proposed study would fall into the category of appreciative listening instead of comprehensive listening due to the integrated nature of the story presentation.

Identification of the necessary elements of listening that have a direct effect on comprehension is not as simple as it seems. Ridge (1984) quoted in Coakley and Wolvin (1986) cites attention, concentration, and memory as the key elements inlistening comprehension. Also quoted in this article is Barker (1971) who observed that "the louder,

the more relevant, and the more novel the stimuli, the more likely they are to be perceived by the listener" (p.16). Coakley and Wolvin state that listening is a separate and distinct communication activity; a measurable skill.

If we utilize the previously stated similarities between reading and listening, it is possible to extend the argument against receptive processes as skills to listening. a review of Goodman's 1977 work,"Acquiring Literacy Is Natural: Who Skilled Cock Robin?" reveals that the same logic is applicable to the listening field today as to the reading field ten years ago. Possibly Joiner (1986) has discovered the fundamental problem,"the lack of consensus as to a definition of listening" (p.64). The methods of instruction, theories of application, and means of assessment all revolve around each author's definition of listening, and the personal determination of whether it is a skill.

This paper advocates the classification of listening as a process with internal and external factors affecting each listener.

The problem of testing listening comprehension has been pointed out by Nunnally (1978). Measures that are valid may be impractical or impossible to administer.

Tests to reflect changes in listening comprehension or to compare comprehension scores between groups may have no reliability and it may prove difficult to establish.

One pragmatically acceptable measure of listening comprehension involves the free recall of subjects. This method was utilized successfully in Brune's (1982) study of effects of advance organizers on the listening comprehension of students with learning disabilities. Fredriksen (1972) and Varnhagen, et al (1982) advocate free recall as a method of listening comprehension assessment. The recall is usually tape-recorded to prevent the constraints caused in pausing for hand transcriptions. A major advantage of this method of assessment is that subjects are unable to guess responses based on contextual clues, nor can they discover through the content of questions that they incorrectly comprehended the passage in time to revise the schema they were constructing. The disadvantages of the method are the time necessary to transcribe the taped recalls, and the more questionable reliability of the scored results due to subjective factors of individual rater perceptions.

Division of a story into episodes provides a technique for constructing a scoring instrument for free recalls. Using the two basic criteria outlined by Golden (in press) it was possible to divide a particular storybook into multiple episodes, thus providing a wide range of scores

for possible responses. Golden utilizes the tripartite structure of goal, attempt, and outcome in combination with non-linguistic cues such as change of focal character, change of scene, or change of time. Van Dijk (1982) has also advocated the use of episodes in the analysis of story structures. Black and Bower (1979) not only consider the episode an integral portion of story structure, but also a necessary substructure of text as it is processed into memory.

Goetz and Armbruster (1980) support the use of episodes in the analysis of text, but they maintain that the episodes are not all of equal value. Their studies show that passages of greater importance to the theme of the text are recalled more frequently than passages not central to the continuance of the story. Goetz, in a study in 1979 also discovered that this effect of importance to the story extends to implied as well as stated events. Other studies cited by these two researchers showed that children had a difficult time arranging story episodes in order of importance, or to classify the episodes by levels of import. Students younger than fifth grade were unable to classify the story episodes at all. It should be noted that fifth grade students are usually ten and eleven years old, and are approaching the Piagetian stage of formal operations. Goetz and Armbruster suggest that children need adult aid to evaluate the importance of different points of the text.

Their work has also shown that children recall the important points of text without outside assistance. The authors suggest that highlighting important information in a text, in some manner, should not only enhance the current learning situation, but increase learning potential by providing the tools to isolate and classify the important information in the text.

If there is some way to make more of the elements of text seem important, then there is a chance that there would be more material from the text stored in memory. Spiro (1980) points out that memory and comprehension have a major similarity, "both processes involve the combining of data (information in text for comprehension, specific memories for remembering) with contextual knowledge toward the goal of understanding" (p.259).

Music and Listening Comprehension

The purpose of this study is to enhance listening comprehension by providing an integrated message to the receiver. In this specific case, oral text and music will be integrated. Music segments will occur at intervals throughout the story to reinforce specific episodes and characters. This concept would not appear to be popular, as there is only one extant study of a similar nature. Mann (1979) studied the effects of music and sound effects on listening comprehension. The study used more than one story, for all groups of students, and the music and sound

effects were distributed throughout the text in the manner of a radio program. Students were divided into reading groups and assigned to treatment groups so that there was an even distribution of abilities in each group. The evaluation for the dependent variable was a written multiple-choice test administered at the conclusion of the story presentation and repeated later to evaluate long-term effects. The study showed a significant difference in the listening comprehension of the treatment and control groups, with the treatment group receiving significantly higher scores than the control group. The high reading group received the highest scores, the low group the lowest scores, etc. There were two aspects of this study that this researcher felt could be improved: separate the music and text so that there is no interference factor that might be caused by some form of hearning loss or impairment; and redesign the assessment measure to insure a more valid evaluation of listening, not verbal reasoning.

In chapter one, the interaction between the storyreader and the listener is illustrated as this researcher visualizes it. The shape of the text is forced to alter to accommodate the prior experiences of both parties (Figure 2). This concept is altered when music is added to the interaction between storyreader and listener. It is felt that this addition will increase the amount of text the listener accommodates in prior experience (Figure 4).

Hypothesized Effect of Music on Interaction

Between Storyteller and Listener

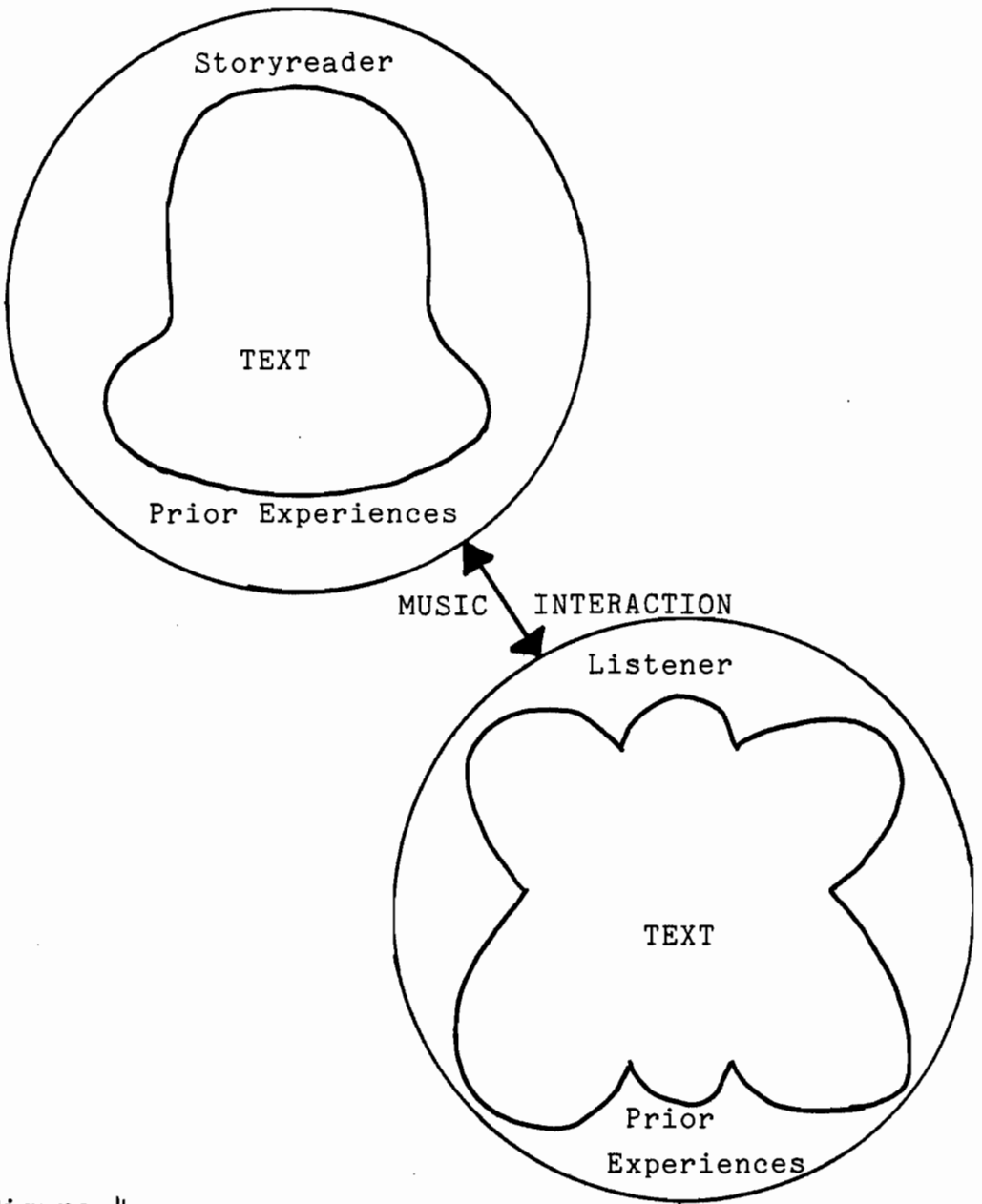


Figure 4

There needs to be unification of textual words and the musical segments. Grout (1980) comments that Richard Wagner successfully achieves this with his music dramas. Wagner utilizes a thematic unit which he refers to as a leitmotif. "The leitmotif is a musical theme or motive associated with a particular person, thing, or idea in the drama. The association is established at the first appearance or mention of the object of reference, and by its repetition at each subsequent appearance or mention." (Grout, p.631). It would seem possible that musical themes fitting the description of leitmotif could become the highlighting for oral text that Goetz and Armbruster (1980) advocate for written text.

Western musical theory has a historical precedent for the association of music with words, characters, ideas, and objects. Countries that have been colonized by the western nations have an experience with and exposure to this association. Other non-western cultures have been exposed to the phenomena through the entertainment media. Composers who score movies and other dramatic works tend to utilize the thematic, leitmotif style in their compositions. Children from non-western cultures may not have a long tradition of word/music association, or of the melodic and harmonic conventions of western music; but, they have had opportunities to experience these factors through movies, plays, and children's television.

It would be impossible to isolate the exact role of music in the listening comprehension process, but there are two main categories that the addition of music segments could fall into; a positive expansion or enhancement of the text, or a break from the text and concentrated attention.

There are four possible roles for music to play in each of the two major categories; enhancing the text directly, or breaking from the text.

Enhancing the text:

(a) the music can function as an advance organizer, anticipating action and character appearance, in much the same manner of pictures in written text. There are conflicting opinions and research data concerning the efficacy of pictures and illustrations on comprehension. Schallert (1980) concluded that pictures can have a positive effect on learning, but admits that some pictures are more appropriate and supportive than others. It would be hoped that the music accompanying the story in this study will be supportive, not confounding;

(b) the music can function as a means of focusing attention that might have wavered or wandered during the segments of spoken text. It must be admitted that Coakley and Wolvin (1986) anticipated this possibility with their notion of loud noises being an easier means of gaining attention;

(c) the music can serve to induce a mental image of some aspect of the story. Gambrell, (1981) conluded from

her own research that induced mental imagery could be shown to enhance the ability of third grades to infer and predict, although first graders did not have the same results. One must also refer once again to the Piagetian stages of development which would place the majority of first grade students in the pre-operational stage and the majority of third graders in the concrete operations stage. A determination if music does induce mental imagery would require further investigation. Students would have to be interviewed individually or provided time to draw pictures representing their mental images. It could then be ascertained if this is the function of music in a listening situation as outlined by this study;
(d) the music can function as a reinforcement of the emotional or affective level of the text. It must be understood that the emotions involved would be those of the composer, and while the storyreader might reflect the same emotions, it becomes unlikely that all of the listeners could be brought to share the feelings of unknown adults.

It is equally possible that music can enhance listening comprehension by providing listeners with time away from continuous processing of oral discourse. The positive effect may be caused by an absence of text allowing one of the following situations to occur:

(a) the music provides a pause from processing the oral text enabling the listener to review and re-evaluate the previously heard material. This is in keeping with Spiro's (1980) comparison of comprehension and memory mentioned earlier;

(b) the music provides a pause from processing new text to predict upcoming events. Smith (1982) and Tierney (1980) both contend that research supports the use of prediction as a valuable aid in reading comprehension. The oral nature of the text would not negate this quality. This use of text is especially compatible with role "a" found in the list of direct enhancement possibilities;

(c) the music provides a pause to break from the concentration the task necessitates. The attention that must be devoted to comprehending a long story leaves the listener ready for breaks during which he can relax, without fear of losing the sense of the discourse;

(d) the music creates a supportive atmosphere for the text, but the lack of focus on text encourages the listener to speculate on the attributes of the story characters. This possible use of text could take place concurrently with reasons "a" and "b" directly above.

There are many possible reasons for music to have an effect on the listening comprehension of second grade students; it must now be determined if an effect will occur. As Joiner (1986) so aptly points out, "Listening is a young field and, as such, one with not only many unanswered questions, but also many questions that have yet to be raised....We would also do well to draw on the work of other scholars, such as audiologists and specialists in music education, whose disciplines involve listening" (p.68).

CHAPTER III

METHODOLOGY

The Problem

The problem is to determine if listening comprehension can be enhanced by presenting an integrated message to the receiver. Specifically, this study will utilize a two group post-test only design in which a control group hears a tape-recorded reading of a story and an experimental group hears the same rendition of the story with music added at intervals. Each subject will be given an opportunity to orally recall the story for a tape-recording. Each subject's recall will be transcribed completely. The transcriptions will be read and specific episodes will be identified and counted. The number of episodes recalled by the members of each group will be compared.

Design

This study was quasi-experimental research using the two group post-test only design described by Campbell and Stanley (1967). The schools which participated in the study had been randomly assigned to either the experimental

or control groups by drawing numbers. Each school provided one classroom to be maintained intact for the study.

The control group was asked to listen to the tape recording of a storybook text while viewing the pictures from the book. Each member of this group was asked a series of demographic questions. Students were requested to respond in writing to these questions on individual answer sheets provided by the researcher. Each member of this group was asked to orally recall as much of the story as possible. Each response from students in the control group was tape-recorded.

The experimental group was asked to listen to the same performance of the story text heard by the control group. The same set of illustrations that were shown to the control group were also shown to the experimental group as they heard the text. Music segments had been inserted between each page of text for the experimental group. The story had been simultaneously recorded on two tape recorders. The music heard by the experimental group was added to one tape at a later time. The students in the experimental group were each asked a series of demographic questions. Students were requested to respond to these in writing on individual answer sheets provided by the researcher. Each member of this group was asked to orally recall as much of the story as possible. Each response from students in the experimental group was tape-recorded.

There were two tape recorders available in each classroom participating in the study. The two cassette tape recorders had built-in microphones and were used to record the oral recalls of each student who participated in the study. The tape recorders were positioned as far apart as possible in each classroom. This was done to minimize any possible interference between recordings. It was felt that this placement would help minimize any interference between subjects who were not actively recording and the recordings in progress at any given time.

The recalls of 10 subjects were randomly selected, by drawing subject numbers, from each school/class. This provided equivalent treatment and control groups of 40 subjects each. Thus, the study constituted a total of 80 subjects (n_1=40, n_2=40, N=80).

Design Variables

The independent variable in this study was the addition of music to the tape-recording of a storyreading that was presented to the experimental group. The music was composed by the researcher, who has a degree in music. The music was composed as themes to represent the three main characters in the story. The music was constructed in different compositional styles to make it easier for the students to tell the themes apart, and to better reflect some qualities of the character represented. These themes were interwoven when two characters interacted.

The music segments composed in this manner were inserted before the related page of text. Each music segment was specifically composed to portray one particular episode from the following section of text. This did not always coincide with the episode featured in the illustration that the students were able to view.

The dependent variable in this study was the number of episodes recalled by each subject. This number was determined by identifying and counting how many story episodes were contained in each individual tape-recorded oral recall. All students heard, and were asked to recall the same story. The quality or detail of the recalled episodes was not evaluated. Sequence of the recalls was not considered a factor. The presence or absence of the recalled episode was the only means of evaluation. Examples of scored recalls can be found in Appendix A. Details of the scoring instrument appear later in this chapter.

There were some unavoidable factors that could have caused variance within and between groups. There was a decay factor present in all schools. Using only two tape recorders necessitated differing elapsed times from the actual storyreading, although this elapsed time was never to exceed one hour. It was not feasible to provide tape recorders for each individual student but it was possible to minimize the interference between recordings by using

two recorders and placing them at the maximum distance from each other in each classroom. Time of day for receiving treatment could also have had an effect on the recalls. However, the random assignment of schools to groups also distributed the morning and afternoon times equally between groups by chance. This distribution would control the time of day factor as much as possible. Subjects within classes and classes within groups may have had differing levels of familiarity with tape recorders. Some students may also have been more familiar with the process of recall or story retelling. All schools were presenting their annual "Winter Concert" during the data collection period. Rehearsals for these events had already disrupted daily schedules which made collection of the data less of an extraordinary change from normal routine. This element predisposed some of the teachers more favorably toward the project.

Assumptions

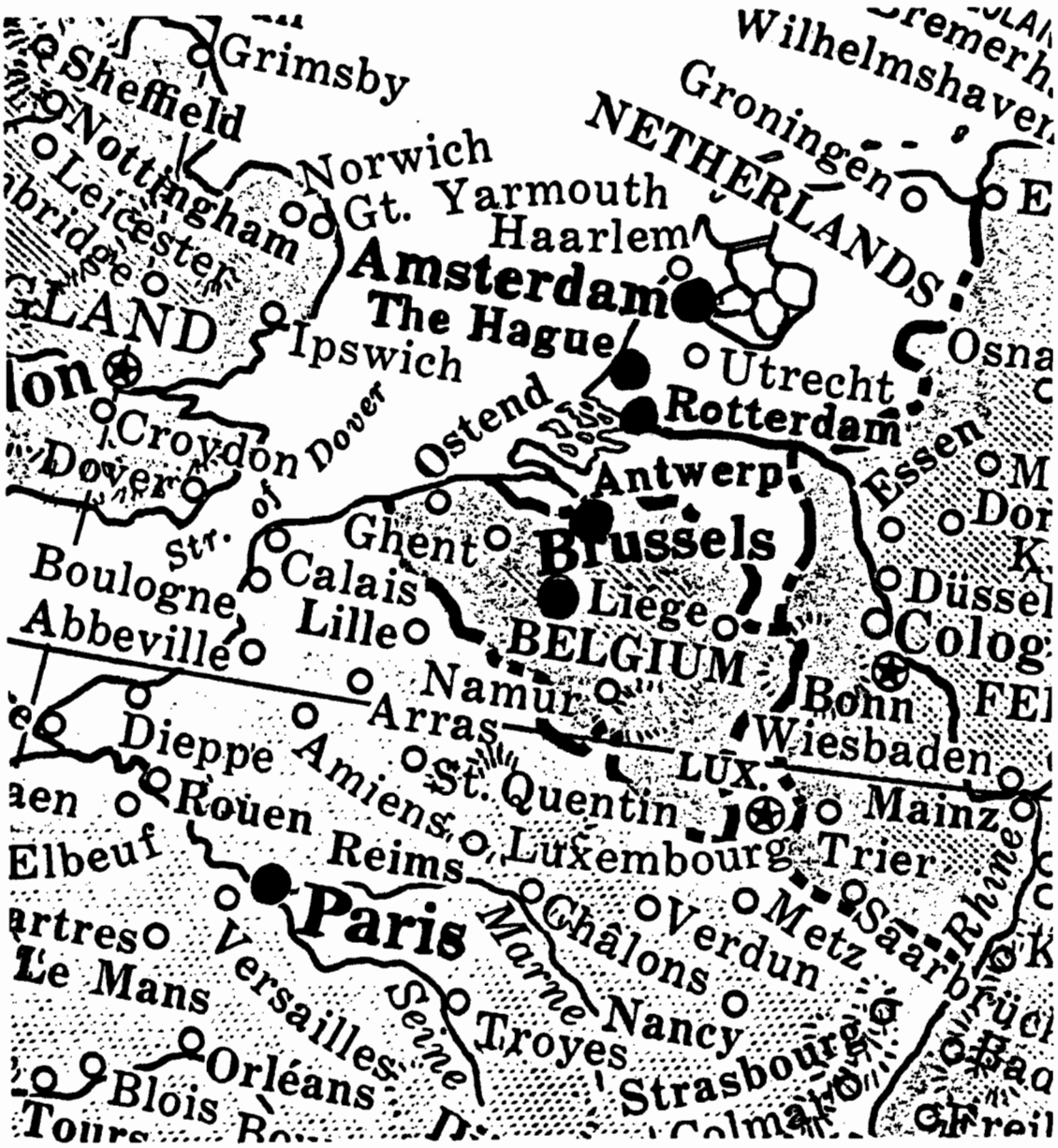
There were two assumptions implicit in the design and conceptualization of this study.

1. The international schools comprise a homogeneous grouping of students who share socio-economic levels, international experiences, third culture status in their country of residence, similar academic standards, and common future educational goals. Third culture status is a means of describing foreign nationals who are present in any country temporarily, without intent to reside permanently.

2. The designation "second grade" implies a grouping of students by approximately equivalent chronological age, or by ability in a specific subject area as determined by a standardized test.

Population

The population studied was international schools with a multi-national/multi-cultural student body. The students in these schools were a mixture of native and non-native speakers of English/American. English language proficiency ranged from an inability to communicate verbally in English to native speakers of English. The eight schools comprising the population were not selected randomly. Ten schools in northwestern Europe that were geographically in an approximately straight line; easily accessible by air, train, and car; and close together to present the most efficient use of time and cost were requested to participate in the study (Figure 5). Each school was contacted by letter addressed to the current headmaster or principal. Teachers and classes participated on a voluntary basis. Eight schools replied positively to the letter, one school indicated a conflict with "Winter Concert" rehearsals that made participation impossible, and one school did not reply. The willingness of teachers and administration to cooperate in this study was a common element in this population. All schools comprising the population were regular member schools of the European



Map illustrating collection sites.

Figure 5

Council of International Schools, the largest professional affiliation of independent schools in Europe, and one of the agencies responsible for accrediting those schools (ECIS Directory, 1986) see Table 1.

Subjects

The subjects in this study were all classified as "second grade" either by chronological determination or by language arts/reading ability which was assessed by a standardized test at the beginning of the school year. The subjects were chosen by their inclusion in an intact classroom at the time of the data collection. Demograhic data requested included the following questions and provide a more complete picture of subjects involved in the study (see Table 2):

1. What sex is the subject;
2. native language of the subject;
3. number of years in international schools;
4. age of the subject;
5. has subject visited or lived in an English speaking country;
6. has someone read to the subject;
7. can the subject read;
8. did the subject know folk-tales in addition to the one just heard?

The complete procedure for the demographic data collection is available in the protocol later in this

Table 1

Composition of Participating Schools

School	Grade Range	Enrollment Elementary	Enrollment Total	% U.K. or American	Total Nationalities
Antwerp, Bel.	Pre-K--12		265	45%	20
I.S.Brussels, Bel.	Nursery-12	360	1000	51%	60
St. John's, Bel.	Nursery-13	340	620	72%	35
A.S. Paris, Fr.	Pre-K--12	260	860	60%	50
I.S.Paris, Fr.	Pre-K--12	210	340	20%	30
Amsterdam I.S., Nl.	K-12	170	330	35%	30
A.S. Hague, Nl.	Pre-K--12	290	825	65%	40
Rotterdam, Nl.	K-8	100	100	50%	20

Table 2

Demographic Data for All Subjects

Trait	ASP	St.J	ASH	Ams	Ant	ISP	Rot	ISB
Males	11	6	6	8	9	9	5	7
% of total	52%	33%	35%	50%	50%	50%	36%	50%
Females	10	12	11	8	9	9	9	7
% of total	48%	67%	65%	50%	50%	50%	64%	50%
Native English Speakers	13	15	12	11	8	12	9	6
% of total	62%	83%	71%	69%	44%	67%	64%	43%
Average years in Int'l Schools	1.62	3.00	2.06	1.81	2.18	2.17	2.14	2.29
Average Age	7.55	7.28	7.41	7.28	7.33	7.06	7.63	7.15
Visited an English Speaking Country	95%	94%	88%	88%	78%	78%	93%	71%
Read To	62%	78%	76%	81%	78%	89%	79%	86%
Can Read	100%	100%	88%	100%	100%	100%	100%	100%
Know Other Folktales	100%	95%	100%	94%	100%	94%	100%	100%

chapter. The information was self-reported by subjects following oral questions. Responses were written by subjects on correspondingly numbered paper provided by the researcher.

Subjects who declined to answer and subjects who recalled no episodes from the story used in the study both received a recall score of zero. Subjects who had heard the story previously were not included in the final selection of subjects.

To compensate for varying class size and prior story knowledge on the part of individual students, it was determined to randomly select the recalls of 10 subjects from each school for the final data analysis. This was accomplished by drawing ten numbers for each school from a number pool corresponding with the the number of students in the class. The selected numbers were matched to the identification numbers of the subjects from each class. The selection process was randomized for each classroom. One hundred thirty-six recalls were collected, of which 80 were in the data appearing in chapter four.

Outcome Measures

As Colin Evans so aptly phrased it in his article "On Comprehension" (British Journal of Language Teaching, 1984, p.24) "The difficulty with testing comprehension is that it has to be tested indirectly via production." Listening comprehension as defined and used in this

sudy cannot be evaluated by means of a paper and pencil multiple choice test. That form of measure has high reliability, ease of scoring, efficient administration, and is easily replicable. It is also not a valid measure of listening because multiple choice tests, by their nature, assess verbal reasoning and reading skills. The multiple choice test can also influence the responses of the subject by providing cues and information that may not have been within the subject's body of processed knowledge. Multiple choice tests can incline test-sensitive subjects to respond in a pre-determined manner by phrasing or the terminology selected. Short-answer assessment also suffers from many of the same deficiencies as the multiple choice test. Verbal reasoning is necessary to complete this test. If the evaluator is not to interview subjects individually and tape-record the answers, then a serious problem with the mode of production arises. Students in lower primary grades may not be able to complete the test because they do not possess the writing skills to complete the assignement. The use of recalls with probing questions is also suspect because respondents will reevaluate which portions of the text were of value based on the points the questions highlight. It is difficult to respond to questions without information. Students who perceive their responses as incorrect, or the meaning extracted from text as valueless may stop answering to hide this fault.

For the purposes of this study it was determined to provide the individuals the freedom to reproduce the story as they interpreted it. This process was more in keeping with the concept and definition of comprehension supporting this study. The validity of the recall as a measure of comprehension was supported by Bernhardt (1985), Brune (1982), Fredriksen (1972), and Golden (in press).

The story presented in the study, St. George and the Dragon, by Margaret Hodges and illustrated by Trina Schart Hyman, was divided into episodes following the criteria established by Golden (in press). Each episode must contain the episodic structure of goal, goal attempt, and outcome; and are marked by linguistic and textual cues that indicate a shift has occurred. These shifts can be identified by a change of tense or text indicating the change or passing of time, change of character or source of reference, change of location, and by a change in the goal attempted. Episode markers are not limited to positions at the beginning or ends of paragraphs. For this study, the story was divided into 30 episodes (Table 3).

One person rated all of the recalls. Recalls for each student were completely transcribed in written form. Each transcription was read by the rater to identify and mark every episode remembered. A mention of the main goal of the episode was pre-determined as the criteria of identification. When all episodes had been marked to

Table 3

Scoring Instrument:

Division of the Story into Episodes

Episode	Lines	First & Last Words	Goal/Event
1	1-9	In...horrible.	setting
2	10-18	Beside...country.	Una's sorrow
3	19-29	But...sword.	Una's search for George
4	30-41	After...at once.	Hermit shows magic castle
5	42-51	But...England.	George's history and task rationale
6	52-63	Then...coming.	Arrival in Una's country
7	64-85	Then...victim.	Dragon appears and charges
8	86-91	The...ground.	George attacks
9	92-99	Once...free.	George and horse carried off and dropped by dragon
10	99-106	With...ground.	George spears dragon's wing and is blasted by fire.

Table 3 (continued)

Episode	Lines	First & Last Words	Goal/Event
11	107-110	Quickly...blows.	George smashes dragon on the head
12	110-118	He...battle.	Dragon is frustrated, blows flames and smoke
13	119-124	But...place.	George falls in a magic spring and recovers from his wounds
14	125-132	The knight...tail.	George strikes off end of dragon's tail
15	133-136	Heart...paws.	Dragon grabs george's shield
16	136-141	Three...shield.	George strikes off dragon's paw
17	142-145	Now...fell.	Dragon attacks with fire and George falls
18	145-147	When...safety.	Una is fearful and prays
19	148-152	But...slept.	George sleeps under the magic apple tree and recovers from his wounds
20	153-164	Then...journey's end.	George slays the dragon

Table 3 (continued)

Episode	Lines	First & Last Words	Goal/Event
21	165-169	The...fallen.	News of the death spreads
22	169-175	Then...knight.	People make a joyous procession to the dragon's remains
23	176-183	But when...covered.	People react to the dead dragon
24	184-188	The...Una.	King's gifts to George are politely refused
25	189-191	When...rest.	King hears story of adventure and offers George a home
26	192-194	But...rest.	George reaffirms vow to fairy queen
27	195-198	The...us	King promises Una and his kingdom to George the dragon slayer
28	199-202	Then...pleasure.	Una appears in white dress and George's heart is full
29	202-203	So...joyfully.	George and Una are married
30	203-end	But...Godspeed.	resolution

separate episodes, and labeled to identify which episode it was, the episodes were counted. Each recalled episode was awarded one point and the total number of points was entered on the top of the transcription page. There was a maximum possible score of 30 points, one for each episode. When the transcribed text was unclear concerning pronominal referent, change of episode due to pause and inflectional change, and other ambiguities that occur when oral text is transcribed, reference was made to the original taped recall for clarification. The rater checked internal reliability by evaluating six recalls not included in the 80 used for analysis at two different times with an elapsed time of six weeks between ratings. The results were identical on both occasions.

Conditions

The data were collected during the ten school days prior to the Christmas break in December 1985. Because of the need to use time efficiently, each school was requested to participate on a specific date at a general time either morning or afternoon. The only positive respondent who indicated a need to reschedule prior to arrival on site requested a time allocated to the non-respondent school. The schools were all engaged in preparation for annual winter performances with attendant rehearsals. These and other special seasonal activities made this an ideal time to collect data without unduly interrupting the normal classroom schedule. Each school was asked

to provide an uninterrupted period 90 minutes long for the procedure. The addition of demographic questions made this time allowance necessary. Only one school did not stay within the time limit, and there was enough flexibility in their class schedule to continue without break until their recalls were complete.

All directions were given orally. The following protocol was used with all subjects. In all cases the students were seated. The presenter was also seated and was in visual range of all members of the group. The presenter held the illustrated text on her lap with both hands during the introductory phrases and the storytelling activity. Due to the variance in introductions provided by the different teachers, that will not be mentioned in the protocol, but will appear later in the data collection procedures.

PROTOCOL

"Hello, I'm here to tell you the story of St. George and the Dragon (display title page). After you have heard the story, I'm going to ask you some questions. Then each one of you will be asked to remember as much of the story as you can and record it on a tape recorder. Can everyone do that?" (pause. Raise book slightly to call attention to title page.) "As you can see, this is a special book because the lady who drew the pictures signed it right here" (point to dedication). "Have any of you heard this

story before?" (Pause here to note how many subjects have heard it and who they are in presenter's mind.) "If you have, you'll have to be careful not to let everyone else know how it ends. I have the story on this tape so I can be sure that everyone hears it exactly the same way. And believe it or not, I'm the person reading the story on the tape. Are you ready? Shhh..." (Turn tape player on and turn book to first illustration.)

The recording of the story follows for about half an hour. The control group recording had approximately five seconds between pages of text for page turning. The experimental group recording did not have pauses for page turning. The music segments for each page of text began immediately after the conclusion of the text from the previous page (Table 4, and Appendix A). The page was turned when the text on the page was completed. The music preceeded the text and lasted approximately 60 seconds or less. Students could view the illustrations during the time the music was playing.

At the end of the the story, students were asked to return to their desks from the story area, then handed a sheet of paper with a number on it. "I am not allowed to have you write your names on the paper, so I have given each one of you a 'magic' number that will be your new name while I am in your class. So, could each of you write whether you are a boy or girl at the top of the page, because numbers don't help tell me that. Are you ready for the questions?"

"Number one. What is your native language? What language have you been speaking since you were a little baby and said your first words?"

"Number two. What language do you speak at home? What language do you use when you're talking around the dinner table at night?"

"Number three. What language (s) does your mother speak?"

"Number four. What language (s) does your father speak?"

"Number five. How many years have you gone to this school? If you were here for any part of kindergarten write three. If you arrived for here later for any part of first grade write two. If this is your first year in this school write one, even if yesterday was your first day."

"Number six. Have you ever visited or lived in an English speaking country; for example America, Canada, Ireland, Great Britain, Zimbabwe, South Africa, Australia, or New Zealand?"

"Number seven. Does anyone at home read to you? That means your mother, father, sister, brother, grandparents, aunts, uncles, nanny, au pair, or even the mailman?"

"Number eight. Do you read to yourself?"

"Number nine. What is your favorite story? There will be no help with spelling, you just do the best you can and I will be able to figure it out. Don't yell the title out loud because someone else might use your title and then I'll never know what their favorite story really is."

"Number ten. Do you know any folk or fairy tales? Some folk and fairy tales are Little Red Riding Hood, Cinderella, Sleeping Beauty, Brer Rabbit, Ananci the Spider, Goldilocks and the Three Bears, and so forth."

"Number eleven. How many years old are you?"

The questions were repeated as many times as necessary for all students to understand and complete an answer. In the cases of questions five, six, and ten there were occasions when more extensive explanation was necessary.

Directions for taping follow. "When I call your number, come to me at the tape recorder. I'll turn it on, then you say your number and tell me everything you can remember about the story. If you remember something later than where it should be, you can add it. When you are finished, raise your hand because I have one more question for you." The question was the prompt, "Think real hard, is there anything else you can remember?". Each subject was thanked and asked to return to his or her seat when finished.

During the time before and after individual turns at the tape recorder, students were engaged in seat work assigned by the classroom teacher, or drawing pictures on paper provided by the researcher.

Table 4

Order of Thematic Elements by Page of Text for Experimental Group

Page	Illustration	Musical Theme
2-3	Second title page	Fairy Theme
4-5	Dedications	Fairy/knight's fanfare
6-7	George, Una on horses	George theme
8-9	Riding in forest	Una's theme
10-11	Castle in high city	George theme
12-13	Arrival in Una's land	Fanfare & George theme
14-15	Dragon	Dragon theme
16-17	In the dragon's claws	George/dragon themes
18-19	George in spring water	George theme, minor
20-21	Dragon and George	George/dragon themes
22-23	George under tree	George theme, minor
24-25	Dead dragon	Dragon, George themes
26-27	Joyous procession	Fanfare/Una theme
28-29	King, Una, & George	George theme
30-31	Una in white dress	Una theme
32	George rides off	Una/George themes

Table 5

Assignment of Schools to Treatment Groups

Control Group

St. John's International School

American School of Paris

Amsterdam International School

American School of the Hague

****

Experimental Group

Antwerp International School

International School of Brussels

International School of Paris

American International School of Rotterdam

Data Collection

The American School of Paris

Written correspondence prior to the data collection had indicated that the subjects would be available for the treatment and assessment from the beginning of school at 9:00 a.m. until the rehearsal for the winter performance at 10:30 a.m. This school is a frequent bomb target, and it was necessary to proceed directly to the school office and wait for the classroom teacher after arriving in St. Cloud at 8:45 a.m. The classroom teacher was already personally acquainted with the researcher, and was able to introduce her to the class without preamble. It was quickly discovered upon marking the roll, that one bus was late. The teacher had all of the students present move to the reading/story area and she sat quietly talking with them until the bus arrived. The researcher then presented the story and asked questions according to the protocol that appeared earlier in this chapter.

The teacher was an American expatriate, currently engaged in doctoral studies in early and middle childhood education. She taught in several other international schools before moving to Paris. There were 21 students in the class, with native speakers of English in the majority. The classroom was rectangular with the desks occupying the full length and half the width of the room. There were shelves and storage areas at each end of the room.

One portion, about half, of the area left free by the desk arrangement was used as a story area with rugs and pillows. The other half of this area was a work area for students. It was possible to locate one of the tape recorders in the story area, facing the wall, and the other was placed on the shelves at the other end of the room, facing the opposite wall. This placement made it possible to tape two student responses simultaneously without noticable interference. This class was the only one encountered in which all students were familiar and experienced with recording their own voices on tape.

The International School of Paris

The researcher arrived at this school just as the lunch period was ending and proceeded directly to the office to meet briefly with the principal. He provided a brief overview of the school and explained that it was predominantly British in staffing and educational orientation. He then took the researcher to the lounge to meet the classroom teacher she would be working with. The subjects were in physical education class until it was time for the research procedure to begin. When the students had returned to the classroom, the teacher supervised the return to seats and the resumption of normal classroom behavior. She then had all of the students move to sit on the carpet at the front of the room and introduced the researcher, explaining why a stranger was in their room

along with a brief overview of the procedure. The researcher then presented the story and asked questions according to the protocol that appeared in this chapter.

The teacher was a British expatriate. She was interested in the procedure, and offered to monitor one of the tape recorders during the recalls. This allowed all of the students to have a listener present during the taping. The majority of students were from Great Britain or the Commonwealth countries. Because English is the official language in many of these countries, the children perceive themselves as native English speakers, but the local dialects caused some difficulty in producing recalls. The room was high ceilinged and almost square. The story area was in front of the student desks. A large bookcase extended about six feet into the room on one side, and it was possible to place the tape recorders on either side of this bookcase. Turning the recorders so that the people recording were facing opposite walls produced very clean recorded recalls. This class displayed the most obvious physical reactions to the storyreading with music. Hands waved to the beat, bodies swayed and rocked, and heads nodded. It has been noted earlier that they were in physical education immediately prior to the research procedure.

St. John's International School

This school was scheduled for an afternoon time. On arrival at the school the researchers went to the office and met with the assistant principal. The principal and all second grade classroom teachers were needed to supervise the dress rehearsal for their concert, scheduled that evening. This school did not provide an intact class. The administration had selected 18 students whose parents had indicated that they would not be able to participate in the evening performance. The subjects were called in early from recess and taken to a room usually used for foreign language instruction. Mrs. Staudt, the assistant principal, introduced the researcher to the students, outlined the procedure, and left the room. The researcher then followed the protocol that appeared earlier in the chapter, presenting the story and questions.

There was no teacher for this group of students, and they were from more than one second grade classroom. The native English speakers in this group of students were of British origin with only two exceptions. The room was a long rectangle. There were six tables forming a U with chairs around the outer edges for the students. The researcher sat on a small table located between the top points of the U to facilitate the subjects' viewing the book. This room was carpeted, providing some accoustical control, and it was possible to record without interference

between recorders by placing them along the opposite narrow ends of the room with subjects facing the wall. This group of subjects talked extensively to each other during the collection procedure.

Antwerp International School

Antwerp had requested a morning time because they had a major afternoon rehearsal for their performance that evening. It was possible to accommodate the school, and the researcher arrived on site before school was in session. This school is designed like a small campus, with the administration and teachers' lounges in a central building and satellite buildings for the elementary, secondary, and special subject areas. The researcher was directed to the lounge by the person at the information desk, and mutual acquaintances introduced the teacher and researcher. In this school, the elementary principal requested a meeting after the procedure was complete. The teacher escorted the researcher to the classroom. She completed the management routines to start the school day, then introduced the researcher to the subjects. The researcher presented the story, questions and instructions following the protocol listed earlier.

The teacher in this room was British, and had been in this school for several years. She was very interested in the project and the story used for it. At her suggestion, one of the tape recorders was placed in the hallway

just outside the door. This room was at the end of the hall and there would be minimal traffic to interfere with the recording process. She also remained by one of the recorders to provide a person to address and to ask the prompt question without delay. The students were occupied with completing assignments at their desks before and after individual turns at the tape recorders. This room was of medium size, but the decorations would have made it difficult to set up two recording areas within its confines. Over 55% of the students in this room were non-native speakers of English, the second highest percentage of all schools engaged in this study.

American International School of Rotterdam

Rotterdam was scheduled for a morning collection, and requested that the language arts/reading time, first thing in the morning, be used for the procedure. The researcher arrived prior to the start of the school day, and was directed to the lounge by the office staff. Introductions to the principal and classroom teacher were effected. The teacher and researcher had time to discuss the basic outlines of the study and the procedure before school started. In this school the students are tested and placed in language arts groups by ability. By using the language arts time, the group worked with was the second grade language arts group, not the entire second grade class. The teacher assigned seat work, supervised the

movement of the class to the carpeted reading/story area, and introduced the researcher providing a brief outline of the procedure. The researcher presented the story and asked the questions according to the protocol from earlier in the chapter.

The teacher was an expatriate American who had taught in other international schools for several years. She did not specifically monitor the taping process, but she did remain in the room throughout the procedure and focused attention on keeping the students not actively engaged at the recorders working on assignments. This was the smallest group of students, 13, who participated in the study. The room was rectangular, and not large. There was a reading/work table in one corner separated from most of the room by a bookcase and a place on the carpet in the story area diagonally opposite that made good recording areas. By asking the subjects at the tape recorders to face the wall, they avoided interfering with each other, or the rest of the class. This class had the oldest individual subject, nine, and the highest average age 7.63.

The American School of the Hague

This school was scheduled for an afternoon collection. The researcher went directly to the office on arrival and met with the principal. He escorted the researcher to the appropirate classroom and performed introductions. The teacher requested the researcher to return later and

utilize the final hour and a half of the school day for the study. When the researcher returned, the teacher effected the introductions to the class, helped position the taping areas, and left the room. The researcher presented the story, asked the questions and initiated the taping procedure according to the protocol found earlier in this chapter.

The teacher was an American expatriate with several years of experience as an elementary teacher. She was involved with some holiday art works at the time of the collection. She returned to the class before the end of the day and discussed various class projects which she felt might have an effect on the scores resulting from this particular group. The possible close relationship of dragons and the current unit of study on dinosaurs was discussed. The students in this class were hesitant to use the tape recorders at first, maintaining unfamiliarity. Once they had started the process, the reluctance was less obvious. The classroom was large and contained several individual work areas that were ideal for recording areas. Bookshelves and a decorated tree helped to separate them from each other, and from the rest of the class. This was the only class containing individuals who owned the story book used in the study. Fortunately, the books were gifts for an upcoming holiday and had not been read yet.

International School of Amsterdam

This school had suggested a mid-morning time for the study, but they were in a Santa Lucia program when the researcher arrived. In the normal aftermath of an assembly, it was the classroom teacher with whom contact was first established; the principal delayed a meeting until later. The teacher supervised his class's return to their room, and the movement to the storyreading area. The teacher introduced the researcher and the project to his class, and remained in the room until the taping procedure was established. The researcher then presented the story, conducted the questioning, and supervised the taping according to the protocol found earlier.

The teacher in this room was a British expatriate. He was very interested in the use of computers and word processors to encourage younger students to write. He displayed samples of students' work over a period of several months. He also mentioned the strong rivalry between two members of his class who are both high achievers. The students were the most vocal during the presentation of the story. Their comments were concerning the story and illustrations. The room was of a moderate size, but was a little crowded. It was possible to set the tape recorders along walls that were diagonally opposite. Having the person recording facing the wall or window kept interference between recorders to a minimum. Students who

were not recording could not hear those who were, avoiding a coninuous rehearsal factor, but the microphone direction picked up quite a bit of class noise. This is the only group that extended beyond the 90 minutes requested for the project. Fortunately, it was a rainy day lunch, and the students preferred to complete what they had started.

The Internaional School of Brussels

This school had originally been scheduled on the same day as St. John's, but a conflict had arisen. Rescheduling proved to be convenient to all parties. The principal had been met on the first visit to the school. She had introduced the researcher to the teacher and arranged for the researcher to go directly to the classroom on her return visit. The class had just returned from lunch recess before the presentation. The teacher introduced the researcher and the project to her students after supervising class movement to the storyreading area. The researcher then presented the story, asked the questions, and initiated the taping procedure.

The teacher was an American expatriate whose previous experiences had been on American Indian reservations and in China working with English as a second language. There were some children in this class who felt that they could not retell the story adequately in English, so they used their native languages, which were translated at the time the recalls were transcribed. This classroom was a large

rectangle about twice as long as it was wide. The taping areas were set up at opposite ends of the room, thus avoiding most interference except echoing footsteps and moving chairs. This was the only class that was interrupted during the recall procedure. All of the students went to foreign language class for forty minutes. Although the presentation and taping procedure did not exceed the time limit set earlier, in this school, some of the students had over an hour elapse between the end of the story and their turn to retell it.

Analysis Procedures

The recalled texts for all subjects were completely transcribed in writing. Each recall was then read by the rater to identify episodes present. To qualify as an episode, portions of the recalled text were required to contain the main goal of the episode. The main goals for each episode can be found in Table 3. Episode transitions were bracketed to illustrate the position of each identified episode. Those episodes were labelled with the number of the specific episode that they represented. Neither the amount of detail provided, nor the sequence of the episode appearances were evaluated in this study. When all episodes had been idenified and labelled, they were counted. Each episode was valued as one point. This translated the number of recalls to a score value for analysis. Each recall was marked with a numerical score.

When the scores had been established for each individual recall, they were separated according to treatment group. Within each group the recalls were arranged by score, from the lowest to the highest. Some recalls within each group received identical scores. The rank-ordering technique employed in this study allowed all tie scores to share the same ranked position. When all scores were arranged in order, position numbers were assigned to the scores. The lowest score received place number one, the next lowest place two, and so on to the highest score which was placed in the position with the largest rank.

This scoring process created a scale of responses from 0 to 30. The different points on this scale had been ranked separately for each group. It was necessary to determine the nature of the scale in order to choose the most appropriate statistical method. This scale was not a series of assigned numbers. There was a definite numerical method for arriving at these scores. The scores could be added and subtracted, but no other manipulations were possible. The difficulty arose from an inability to conclude that each episode of the story was as important as every other episode. Thus the scores had value in relation to each other, but not a relation based on intervals of exact and identical size, or an absolute relationship. The properties and limitations of the scale

in the study were consistent with those of an ordinal scale. The elements of the scale could be placed in order by numerical determinations. There was not an equal or absolute interval relation between the numbers of the scale. The different levels of the scale could not be subjected to multiplication or division and retain the established relationship.

The population was the other factor that had to be considered in the choice of analysis procedures. In this study the population was comprised of two independent groups. The classrooms in the schools were randomly assigned to groups by drawing numbers. The ten subjects in each class were randomly determined by drawing numbers. Subjects were originally assigned to classrooms by an outside agent in an undetermined manner. The point of the study, to determine if listening comprehension was enhanced, was to be determined by a post-test only comparison of scores. This meant that the statistical procedure need only be able to analyze a one-time, between groups comparison.

The use of an ordinal scale limited the analysis to non-parametric statistical procedures. Of the choices available, Siegel (1956) maintains that the Mann-Whitney U test is equivalent to the t-test in reliability and accuracy. This test was designed to determine if two independent groups were actually drawn from the same

population. This was interpreted as a means of ascertaining if the independent variable had affected the experimental group to the extent that responses on identical measures of evaluation would be significantly different. In addition, this procedure allowed for a directional hypothesis as found in this study. The statistical procedure also provided a formula to correct for tie scores at whatever level of ranking they occurred. Considering all factors, the Mann-Whitney U test passes what Kennedy (1978) refers to as the goodness of fit test.

It was decided prior to the collection of data to determine the significance of results to $\alpha = .05$ level.

CHAPTER IV

FINDINGS

The Problem

The problem was to determine if listening comprehension could be enhanced by presenting an integrated message to the receiver. Specifically, this study utilized a two group post-test only design in which a control group heard a tape-recorded reading of a story and an experimental group heard the same rendition of the story with music added at intervals. Each subject was given an opportunity to orally recall the story for tape-recording. Each subject's recall was transcribed completely. The transcriptions were read and specific episodes were identified and counted. The number of episodes recalled by the members of each group were compared.

Results

This study was conducted according to the outline provided in the problem statement. In addition to the data relevant to the main problem and the research hypothesis, demographic data were collected to delineate the parameters of the population participating in the study.

A condensed review of this information illustrates three important points. Each treatment group contained the same number of male and female subjects. There should be no discernible effect caused by possible sex related attributes, such as language ability, attention span, or rate of development. The subjects in the experimental group averaged slightly higher in age and length of time in the international schools. It is possible that this slight variation is attributable to the final point; there were more non-native speakers of English in the experimental group than in the control group. These differences did not have a significant effect on the results of the study. The information is found in Table 6.

Table 6

Subject Information by Group

Control Group	Experimental Group
45% male subjects	45% male subjects
55% female subjects	55% female subjects
7.26 years average age	7.31 years average age
2.13 years in international schools	2.20 years in international schools
67.5% native English speakers	55% native English speakers

The transcribed recalls of each subject were read and analyzed as outlined in the problem statement. Each recall was read to locate and identify each episode that the subject had included. The episodes were assigned a value of one point each and the total number of points for each recall constituted the score. The scores were then ordered from the lowest to the highest and given rankings low to high; so that rank number one was assigned to any subjects who received a score of zero on the recall. Table 7 illustrates the rank-ordered raw scores of all subjects in the study. It is interesting to note that the highest score in each group is 19, and that both groups had members who received a zero score. Table 8, below, shows the mean and median scores of each group. In an ordinal scale the median is a more valuable measure of central tendency than the mean, and also serves to moderate the effect of extreme scores.

Table 8

Mean and Median Scores by Group

Group	Mean Score	Median Score
Control	6.2	5-6
Experimental	6.6	6

Table 7

Raw Group Scores in Rank Order

Control Group

Rank	Score	Rank	Score
1.	0	7.	6
	0		6
	0		6
2.	1	8.	7
	1	9.	8
	1		8
3.	2		8
	2		8
	2		8
	2	10.	9
	2		9
4.	3		9
	3		9
	3	11.	10
	3	12.	11
5.	4	13.	12
	4	14.	13
6.	5	15.	16
	5	16.	19
	5		19

Table 7 (continued)

Raw Group Scores in Rank Order

Experimental Group

Rank	Score	Rank	Score
1.	0	7.	6
	0		6
	0	8.	7
	0		7
2.	1	9.	8
3.	2		8
	2		8
4.	3		8
	3		8
	3	10.	9
	3		9
5.	4		9
	4	11.	10
6.	5	12.	13
	5		13
	5	13.	14
	5		14
7.	6		14
	6	14.	15
	6		15

The research hypothesis was stated in a directional form. "The use of music segments related to and played before each page of an illustrated children's story presented in a storyreading situation will have a positive effect on the cumulative listening comprehension of second grade students." The Mann-Whitney U test, which allows for directional hypotheses, was chosen for this study. The test is used to determine if the two independent groups are drawn from the same population. If the experimental treatment was successful, it should cause the two groups to appear to be drawn from different populations. The raw scores from Table 7 were inserted in the Mann-Whitney U formula (4.1) below. This should yield a "z" value that can be referenced in a standard table to determine the level of significance. For this study, it has already been determined to use $\alpha = .05$ as the level of significance.

$$z = \frac{U - \frac{n_1 n_2}{2}}{\sqrt{\left(\frac{n_1 n_2}{N(N-1)}\right)\left(\frac{N^3 - N}{12} - \Sigma T\right)}} \qquad (4.1)$$

$$z = \frac{857 - \frac{(40)(40)}{2}}{\sqrt{\frac{(40)(40)}{80(80-1)}\left(\frac{80^3 - 80}{12} - 296\right)}}$$

$$z = \frac{57}{\sqrt{10718.09}} \qquad (4.1)$$

$$z = 0.55$$

The value z= 0.55 provided a $p \leq .2912$ (Siegel, 1956, p.247). Thus, there is no significant difference between the control and experimental groups according to this analysis. The hypothesis was rejected.

Detailed tables illustrating the distribution of episodes recalled by schools within groups, and individuals within schools appear in Appendix B.

In examining this analysis of the data, it would appear that the addition of music to the storyreading situation did not cause a cumulative increase in the number of episodes recalled. As a further analysis of the data, the episodes themselves were examined more closely. First the episodes were listed individually to illustrate the number of subjects in each group who recalled that specific episode, as seen in Table 9. It was for this purpose that each episode had been identified in the original procedure for rating subject recalls. A version of this chart illustrating the frequency of each episode's recall is found in Appendix B.

Table 9

Frequency of Episode Recalls by Group

Episode #	Control Group	Experimental Group
1 *	10	16
2	7	3
3 *	11	9
4 *	7	11
5	3	5
6 *	11	5
7 *	16	10
8	17	12
9 *	7	6
10	4	7
11	1	0
12	11	7
13 *	9	19
14 *	7	14
15	4	1
16	2	4
17	10	10
18	1	3
19 *	11	14
20 *	23	30
21	3	3
22 *	11	11
23	7	8
24 *	4	6
25	8	5
26	7	9
27	12	8
28 *	6	2
29	15	18
30 *	4	8

* indicates an episode specifically portrayed by a music segment

Table 10

Most Frequently Recalled Episodes

Episode #	Frequency of Appearance
20*	53
29	33
8	29
13*	28
1*	26
7*	26
19*	25
22*	22
14*	21
3*	20
17	20
27	20

* indicates an episode specifically portrayed by a music segment

The data shown in Table 9 would indicate that there is a great deal of variance in responses both between episodes and groups. It was decided to list the ten most frequently recalled episodes by all subjects, as shown in Table 10 above. This table illustrates that eight of the ten most popular positions were filled by episodes that were specifically portrayed by music. These re-inforced episodes coincided with the textual illustrations. In an

attempt to factor the effect of the pictures out of the analysis, the most frequently recalled episodes were determined by group. The control could have shared a picture effect, but they would probably not have exhibited a pronounced effect on musically reinforced episodes. (Table 11, below)

Table 11

Most Frequently Recalled Episodes by Group

Control Group		Experimental Group	
Episode #	Frequency	Episode #	Frequency
20*	23	20*	30
8	17	13*	19
7*	16	29	18
29	15	1*	16
27	12	14*	14
3*	11	19*	14
6*	11	8	12
12	11	4*	11
19*	11	22*	11
22*	11	17	10

* indicates the episode follows a music segment/illustration

The slight differences shown in the most frequently recalled episodes above was enough to indicate a possible trend that should be followed. This study was not designed to provide data relevant to some of the specific questions that had begun to emerge, but the data that was collected has been exercised to its fullest extent.

It appears that the frequency of episodes recalled by members of the control group was not visibly tied to the musically portrayed/illustrated episodes. This visual evidence is more pronounced if attention is focused on the six most frequently recalled episodes in each group. Six corresponds to the median score of all subjects. In this observation it should be noted that the control group placed three of the music/picture episodes in the six most frequently recalled episodes. The experimental group placed five of the six music/picture episodes in the six most frequently recalled episodes. Individual subject reaction must not be discounted as a possible cause for these findings. It is possible, however, that the music segments are responsible for the difference. This storyreading contained a total of 16 music segments. The first two of these were written to accompany the title pages. The remaining 14 segments were directly related to episodes in the text, and these became the next focus of attention.

Totals of all the appearances of the 14 episodes identified as related to music segments were calculated for each group. These figures are illustrated by the graph in Figure 6. A total increase of 24 instances of recall does not appear to lead to a trend in the results. It should be remembered that the median score

Total Recalls of Musically Portrayed Episodes

by Group

(14 music enhanced episodes)

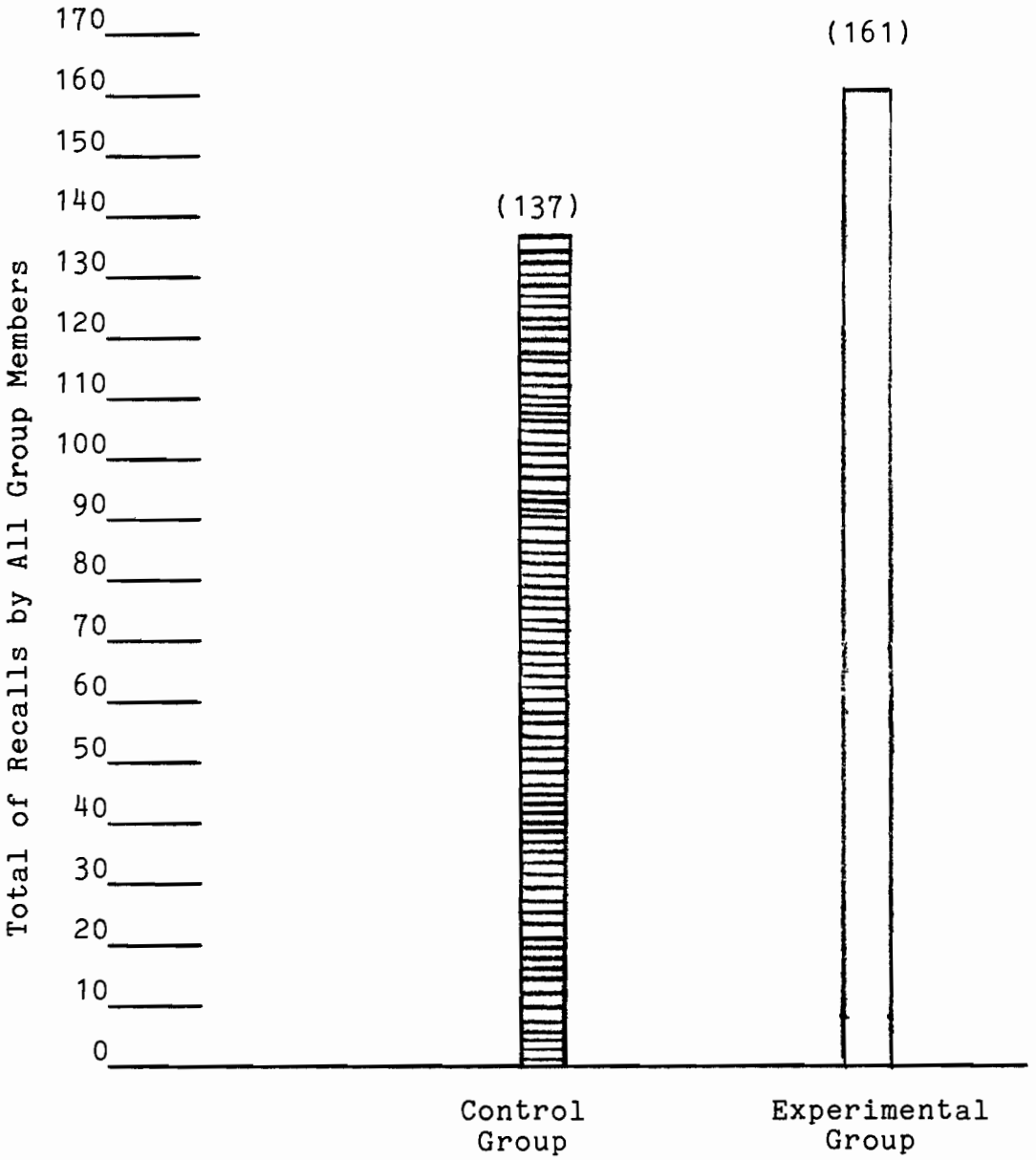


Figure 6

Distribution of the Episodes Portrayed by Music

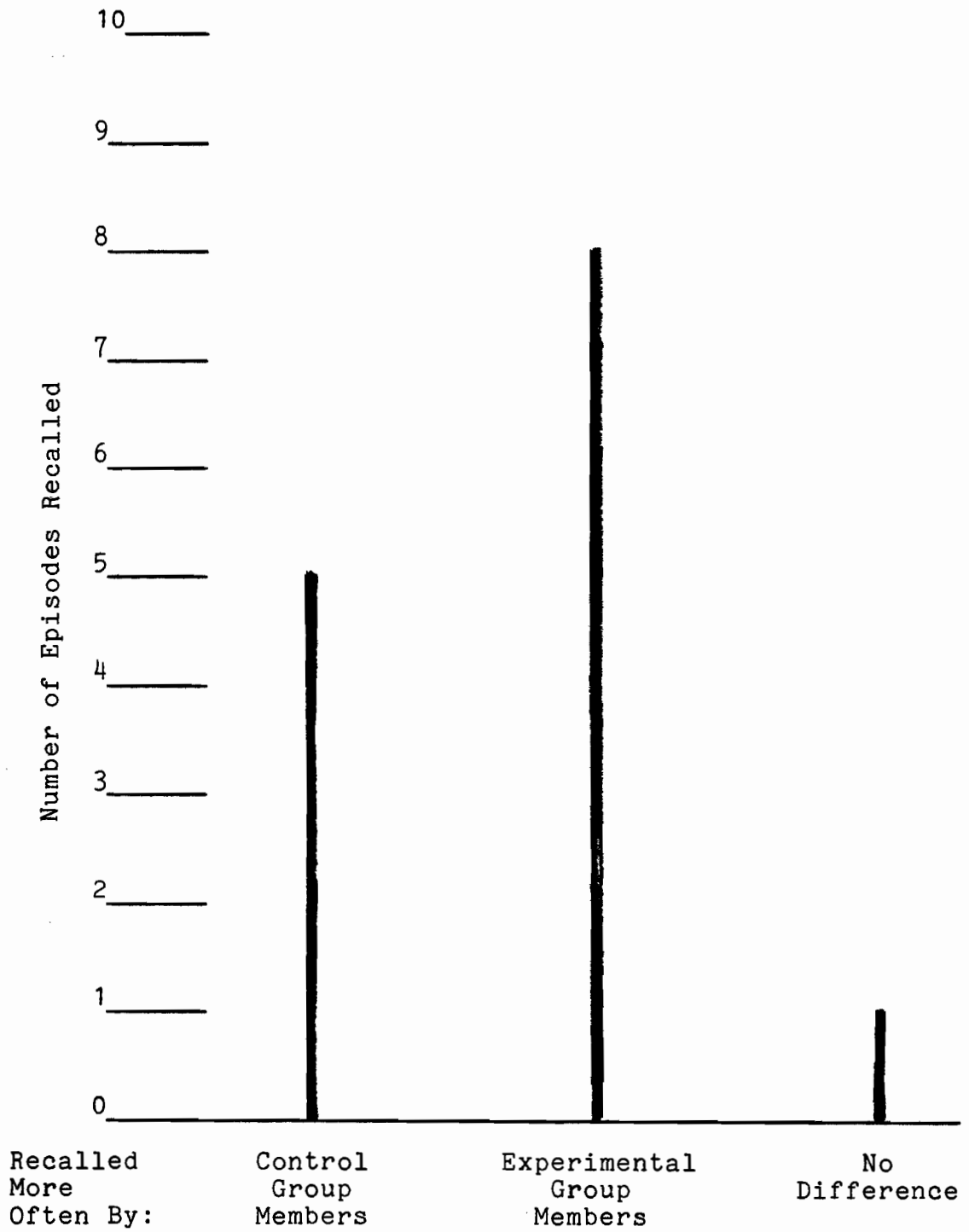


Figure 7

for all subjects was only about 6 episodes. Those 24 episodes represent approximately 10% of the total response from the experimental group.

The possibilities were encouraging, so a further visual comparison (Figure 7) was devised. In this graph the lines represent those music related episodes in which one group or the other had the largest number of recalls. For example, in episode one the experimental group members recalled the episode six more times than the control group members did. In episode number three the control group members had two more appearances of that episode in recalls than did the experimental group members.

It is impossible to be more specific in attributing variance and cause, because the data collection was designed to address another approach to the problem. There are too many factors that could be confounding these results to reach any firm conclusions regarding the role and significance of music segments in the listening comprehension process.

It does seem possible that although the original hypothesis was rejected, a new direction for research has been suggested. Instead of a cumulative increase in episodes recalled, it is not unlikely that music segments can affect which episodes a listener will recall.

CHAPTER V

CONCLUSIONS

Recapitulation

The purpose of this study was to determine if listening comprehension could be enhanced by providing an integrated message to the receiver. The integrated message was to be composed of oral discourse, in the form of storyreading, and music segments that were intended to reflect the characters and action of the story.

Comprehension is a process, unique to each individual, in which meaning is derived. The stimuli triggering this process can be internal or external, but the assignment of meaning takes place in the brain. Cognitive theory (Piaget, 1959; Vygotsky, 1962; Bruner, 1983) describes this process as assimilation and accommodation. Assimilation is the reception of new knowledge or stimuli and accommodation is adjusting all prior knowledge to form a consistent whole that includes the new knowledge. By this definition, comprehension must be an interactive process between the human brain and its environment.

No two human beings are exactly alike, nor do they have identical prior experiences. The picture of the world formed inside the head is dependent on the entire body of an individual's experience. Each assimilation of knowledge must be fit into the pattern already in the brain, and that in turn is based on what has gone before. Experiences common to two or more people will not be perceived in an identical manner because the prior knowledge is not exactly the same. Prior knowledge and the context of experience have been shown to affect the perceptions of individuals (Rumelhart & McClelland, 1980; Steffenson & Chitra, 1984).

The elements of this internal knowledge system are labelled "schema" by Rumelhart (1980). The schema are constantly absorbing and integrating knowledge and altering the shape of the pattern of knowledge in the brain to maintain a model of the world that is constantly consistent with all existing information. The interactive integrative nature of schema has been cited (Smith, 1982; Rumelhart, 1980) as fundamental to the comprehension process. If a major function of the brain in gaining understanding, or comprehending, is integration of incoming stimuli, then one must wonder why educators persistently isolate the chunks of knowledge they wish to convey to students.

The world is naturally integrated into a coherent whole. In this world the individual can assume many roles, instigator or receiver, object or subject. The construction of an individual human ecology is dependent on the self-perceived role and sensory stimuli interpreted in light of prior experience and knowledge. Each reaction, perception, and accommodation subtly alters the body of prior knowledge and experience, thus influencing the perception/reception of all future stimuli in this integrated process.

Comprehension is the perception and integration of incoming knowledge into the pattern formed by prior experience, body of knowledge, type of knowledge, mode of reception, self-perception, and surrounding environment. Students are faced with a continually expanding body of knowledge that must be assimilated into their existing schema. It is the role of educators to facilitate the processes necessary for comprehension of this body of knowledge. An understanding of the these processes by educators is necessary to provide students with the strategies and techniques needed in comprehension. These processes will enable students to cope with the existing world.

Language is a medium of communication comprised of productive and receptive elements. Writing and speaking are productive, reading and listening are receptive. Many comparisons are drawn between reading and listening

due to their receptive nature. Comprehension is a major concern in both fields, although most of the research has focused on reading comprehension. The individual is receiving discourse whether written or oral. There are differences in these two language elements; listening is paced by the speaker and includes many non-verbal cues when visual contact is maintained (Varnhagen, 1982), while reading allows the receiver to review text exactly and clarify misconceptions without the author's presence (Smith, 1982). It would seem logical that any additional clues that could be provided to clarify meaning, especially in listening where there is no easily reviewed text, would benefit the receiver and aid comprehension of the message.

Vygotsky (1962) has maintained that the message is determined by the intent of the sender. Savignon (1983) attributes comprehension of the message to a negotiated meaning between sender and receiver. In the case of tape-recorded oral text, the sender must make the intent known with as many additional clues as possible, because there will not be the interactive negotiation of meaning between principals that occurs in conversation. The listener in that case negotiates the meaning, utilizing all clues possible, with his own prior experience or schema. Telephone conversations pose similar problems in clarity of intent; there are no visual clues to affirm comprehension.

Teachers devote a large portion of instructional time to instructional "talk". Students tend to fill the role of passive listeners. Goodlad (1984, p.229) "observed that, on the average, about 75% of class time was spent on instruction and that nearly 70% of this was 'talk'-usually teacher to students....Clearly, the bulk of this teacher talk was instructing in the sense of telling." Students who cannot extract meaning from what they hear are at a disadvantage. Teachers who utilize techniques and strategies to aid comprehension, particularly the meaning of oral discourse, will be more effective than those who do not address the problem.

The arts, like language, are composed of productive and receptive elements. Intent, or message, is implicit in the creative processes producing music, visual art, movement and dance, and non-verbal modes of communication. The popular media have taken advantage of this aspect of the arts and integrated them into communication situations. This provides knowledge that is already partially integrated before the comprehension process begins. The human body being capable of simultaneously sensing multiple stimuli, this pre-reception integration should, logically, make the comprehension process easier. An extension of this theory leads to the conclusion that integration of several possible modes of conveying intent could aid comprehension of the message.

There are applications of the integration process currently to be found in language programs. Continued use of Asher's Total Physical Response (in Joiner, 1986) method of language instruction, the "English Through Action" method of instructing English as a second language, and the "Language Experience" approach to first language literacy provide operational examples of successful, integrated approaches to communicative competence.

Listening for meaning is a necessary element of competence in communication. That is the need which initiated this study. The rationale originally stated in the first chapter of this report, supported the need for examination of ways and means to increase listening comprehension. The conceptual framework,upon which the problem statement of this study was constructed, is valid and logical.

Reassessment of the Problem

Looking back on the entire study, it appears that some sections of the literature were misinterpreted, and some of the operational definitions of terms were selected incorrectly by the researcher. At the time, based on the prior knowledge and experiences of the researcher, they appeared to be correct.

As observed in chapter two of this document, there is only one extant study that had concerned itself with the integration of music in a situation where text comprehension was the major goal (Mann, 1979). Although the Mann study appeared to have some flaws in execution, the research design was sound. There was no reason to question the results or the reliability that would allow replication of the study. Changes in execution of the study, particularly the assessment measures, should not have destroyed the reliability of the study. Mann achieved significance for his experimental treatment of music and sound effects. It was felt that the study reported in this document would also achieve significance.

The limited number of research studies that had focused on the integration of music in the comprehension process caused the researcher to utilize many studies from related fields in the study reported here. The similarity between reading and listening has been pointed out earlier in the study. This is the largest single body of literature that was used in constructing the frame upon which this study has been built.

An overview of the literature, upon which this study is based, discloses three of the topics central to the structure of the study that deserve closer attention. The topic that appeared most frequently in the widest range of literature concerned the age of the subjects

selected for this study. The average age of the 80 subjects whose recalls of text formed the source of data for this study was about seven years and four months.

A second consideration that arose when re-examining the literature at the conclusion of this study concerns the operational definition assigned to the term "enhance". This researcher originally used a literal interpretation found in the dictionary. It is doubtful if this definition reflects the philosophy and goals behind the conceptualization of this dissertational study.

The final topic, central to the formulation of the study reported here concerns the integration of music with text. The music is subsidiary to the oral text and they do not occur at the same time. This has limited the relevance of most existing literature incorporating music and text. The choice of music, manner of integration, and the actual function of the music once integrated are all open to conjecture and debate.

Piaget (1959) has made several observations about children at approximately seven years of age. He maintains they are moving from pre-operational to concrete operational thought. They are going to become capable of conservation, reversability, and other logical thought patterns reflecting things experienced in the surrounding environment. There is an end to ego-centric speech and

the child engages in argument and social discourse. Piaget also maintains that until after these changes occur, the child is not capable of consistent perceptions, nor of reflexive thought. In the context of the study reported here, there are several implications to be considered. The age group chosen will not be as likely to suffer from cultural interference as those subjects who came from divergent cultures. The ego-centric nature of all interactions before the child is ready to engage in argument and social discourse insulates the subject at age seven from some cultural influences that would be manifested in older children. The children who have not progressed to concrete operational thought will be less likely to process the oral text in a consistent manner that reflects familiarity with story conventions. This lack of consistency in thought is manifested by each new piece of knowledge, information, or text becoming the most important and reshaping the child's existing schema. At the end of a new story, the initial episodes have been altered by those occurring subsequently to the point where they have lost their relative value to the story now in the child's mind. This inconsistency in thought makes it difficult for the child to apprehend and identify recurring structural shapes; each shape has altered between the beginning and end of the story. The child who has not progressed beyond ego-centric speech will have difficulty

reconstructing the speech for the recalls. This child audibly discusses feelings, actions and reactions with the self at any time. The child also knows that school behavior conventions do not allow talking in the course of evaluation. If the child cannot talk the story over to himself, he will never be able to reconstruct it. Some children will ignore conventions of behavior and discuss the story with self before saying the "real" version that is to be tape-recorded. Children who do this will use two different voices, one for self and one for the public.

Gambrell (1981) cites the fact that third graders are capable of induced mental imagery, but first graders are not. This is consistent with Piaget's notions of levels of cognitive development. Second grade students might respond either way, as some will have attained the next level of thought while others have not.

Goetz and Armbruster (1980) maintain that children younger than fifth grade are not able to rank order sections of text, nor can they classify sections of text on the basis of value or importance. Younger children have no consistent internal system for the evaluation of text. This reflects not only the inconsistent perceptions that Piaget attributes to the pre-operational child, but also the need for concrete experience, in this case with texts, before the logical process can take over.

Vygotsky (1962) differs from Piaget in his interpretation of the role of self-speech. Vygotsky maintains that ego-centric speech does not disappear, it becomes the internalized speech of thought. The age at which speech becomes internalized is equivalent with that at which Piaget maintains ego-centric speech ends. If it is true that self-speech is in the middle of the internalization process then some notable examples should appear in the tape-recorded recalls from this study. Students who have passed the stage of audible self-speech but are not yet secure with the internal speech of thought will require long pauses during the recall process to retell the story in the mind before saying it aloud.

To determine if any of these theories were supported in the data collected for the study reported here, it was necessary to return to the original tape-recorded recalls of the text made by the students.

It is impossible to determine the accuracy of Gambrell's assertions concerning the relationship of age to the ability to form mental images. Specific assessment would be required to discover the validity of this argument. That assessment has formed no portion of this study.

There is evidence from this study available in the original tape-recorded recalls of text to support the other theories of age-related attributes in the group of students who

comprised the sample for the study reported here. There were examples of students who found it impossible to put the episodes of the story in any sort of sequence. There were some students who could only recall one episode near the beginning of the story, one in the middle, and one of the last two episodes. There are recordings of students who recalled several episodes from the text, but none that an adult listener would categorize as important. The taped recalls of text also include examples of the change from ego-centric talk to internalized self-speech. There is one example provided by a boy from the Hague, who whispers each episode of the story over and over until it is phrased correctly, and then he repeats it for the tape-recorder at a conversational volume level. Many of the recalls contain long pauses, punctuated in some cases by sighs, followed by a rapid and complete delivery of a section of text. The two subjects from Amsterdam who each recalled 19 episodes of text, the largest individual scores, both told the story almost without pause. Each of these two students had no more than one episode out of correct order in the individual recall of text, retold the story with detail and in some cases editorial, evaluative comment was added.

Based on the theories and evidence cited in this chapter, it is possible that using older students in the study that has been reported here would have yielded an entirely different set of results than the second grade subjects who were actually selected. Mann (1979) used fifth grade students in his study that achieved a significant increase in listening comprehension.

Four research questions dealing with the interaction of age and comprehension as a cognitive process have evolved from the discussion of age characteristics here:
(a) If comprehension is a cognitive process, are there identifiable stages acquired in developmental order?
(b) Is listening for comprehension a developmental process linked directly to cognitive stages of development?
(c) What is the average number of story episodes that can be recalled from a listening experience at different age levels from five to fourteen years?
(d) At what age or stage can children evaluate story episodes?

The second consideration arising from a re-evaluation of the study reported here concerns the definition of enhancement. This definition was crucial to the design of the study and the expectations of the researcher. It has been interpreted as meaning "to increase". Evidence found in a re-examination of the literature leading to this study, in light of the later findings indicates that this definition is too narrow. Comprehension is a dynamic,

interactive, flexible, individual process. Measures of strategies designed to affect the process must be as flexible in classifying results as the process itself. Goetz and Armbruster (1980) have suggested that the text be "highlighted" to draw the attention of younger students to important points, before they reach the age at which they can recognize these points by themselves. The term highlight is compatible with connotations of the word enhance that appear in educational literature. There is a subtle nuance of expanded, but made better or more valuable in this usage of enhance.

Joiner (1986) has raised the related issue of a lack of consistent definition of listening by researchers. It does seem rather necessary to start a discussion with a set of clearly defined terms, since each individual will then interpret the terms in relation to prior knowledge. If a consensus is not reached, it will become impossible to utilize other studies in the field of listening for reference purposes.

Students in schools are constantly evaluated by teachers. The assessment techniques employed in schools are subjective by nature. The teacher determines the values for all text presented, as well as how to value the associated testing procedure. The implied goal of any teacher is to have students recall the portions of text, or material, presented that the <u>teacher</u> feels is valuable.

It has already been shown that students in the lower primary grades do not have the ability to make value determinations. The teacher is responsible, not only for providing those evaluative decisions the students cannot complete themselves, but also for providing students with tools and strategies for evaluation and classification. Thus, when the child is mentally ready to evaluate, he will be prepared to attempt the process.

There were some indications of educational importance in this dissertational study. It seemed that it was possible to influence which of the story episodes were recalled after a listening experience by portraying specific episodes with musical themes or programs. There is no method that will enable a student to perceive text as an adult, or to alter the individual prior experiences that help shape a negotiated meaning for that student. It might be possible to present a message with integrated elements at the point of interaction which provides a comprehensible shape needing little negotiation. The additional elements would provide a broader range of common experience to all class members, leading to a more consistent perception and comprehension of the message or intent (Figure 8).

The final area of concern arising from this study concerns the music integrated with the oral text. The selection of music or sound effects or both is ultimately

Revised Hypothesis of Musical Effect
on Interaction Between
Storyreader and Listener

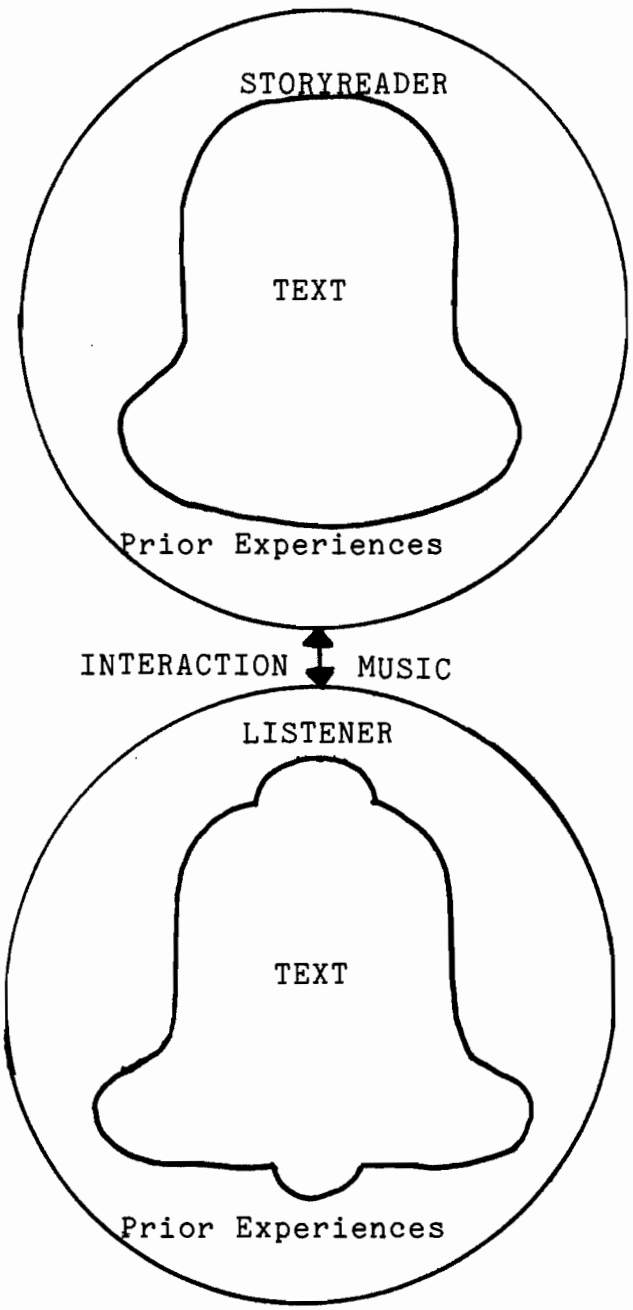


Figure 8

determined by the person presenting the text. It is understood that few teachers have the time or ability to compose music or manufacture sound effects for class listening activities. There is a large body of this audio material available in libraries and record shops. The problem remains selecting material that is appropriate to the text and age of the students. The consequent dilemma is deciding how to integrate the sounds with the text. In view of the findings from this study, it seems that these sounds should be placed near the episodes that are to be highlighted. There are occasions when the text and sounds might overlap and interfere with each other. The teacher must take responsibility for determining what to do in this case. The difficulty here lies in the lack of reliable reference material to guide one in this integration process.

A final research question is raised concerning music: Is it possible to begin assessments of children's response to music in a manner similar to literature studies?

Children who have never participated in specific listening activites may have some difficulties initially. Teachers who provide these activities need to remember that it is unlikely that students will recall, or demonstrate the processing into memory of more than half of what they hear.

Reflections

This study has achieved one of its goals by initiating an investigation into the field of listening comprehension. As Joiner (1986) asserts, it is a new area for educational research. Listening is a lifelong attribute that can be directly responsible for the success or failure of students at any point in life. It is necessary to be able to comprehend oral discourse.

The lack of significance in this particular study is not as important as the questions that have been raised for future research and the trends for education that might have been discovered. If musical highlighting can help younger students develop a system for evaluating oral text, then the study has been of value.

Joiner (1986) has also suggested that considering the relative newness of the field of listening, one of the main goals of researchers must be the identification of questions that need to be answered. It is also suggested that researchers from other fields that incorporate listening become involved with the language specialists in identifying these questions and searching for the answers. It is possible that music education specialists have valuable information and expertise to offer other researchers in listening.

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APPENDIX A

DATA AND MATERIALS RELATIVE TO CHAPTER III

Melodic Themes with Harmony by Character

1. Theme of the Fairies

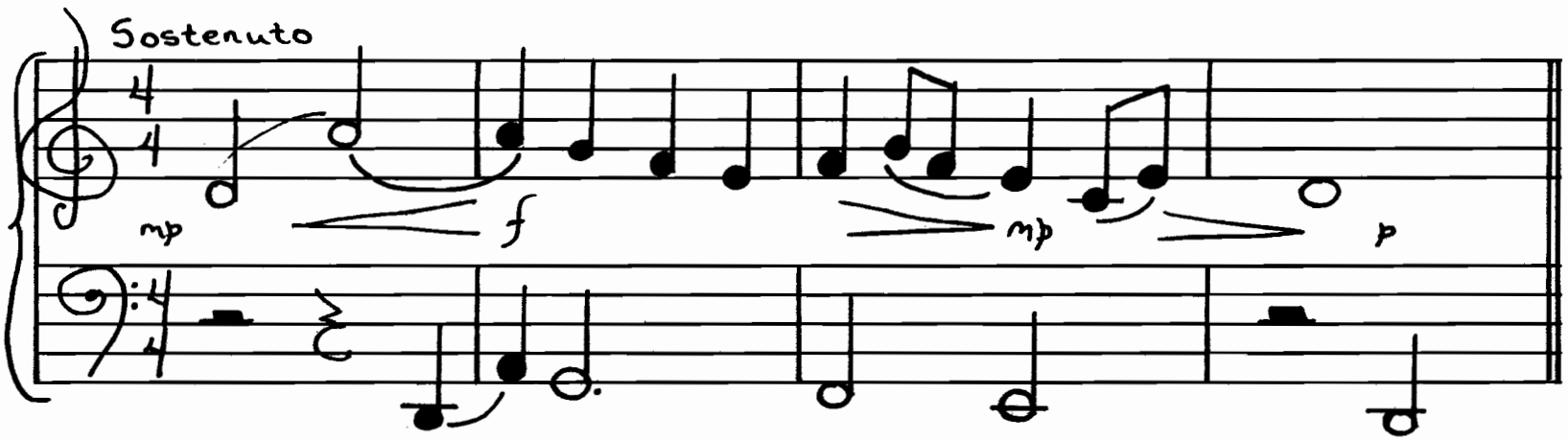


Figure 9

2. George's Theme with Fanfare

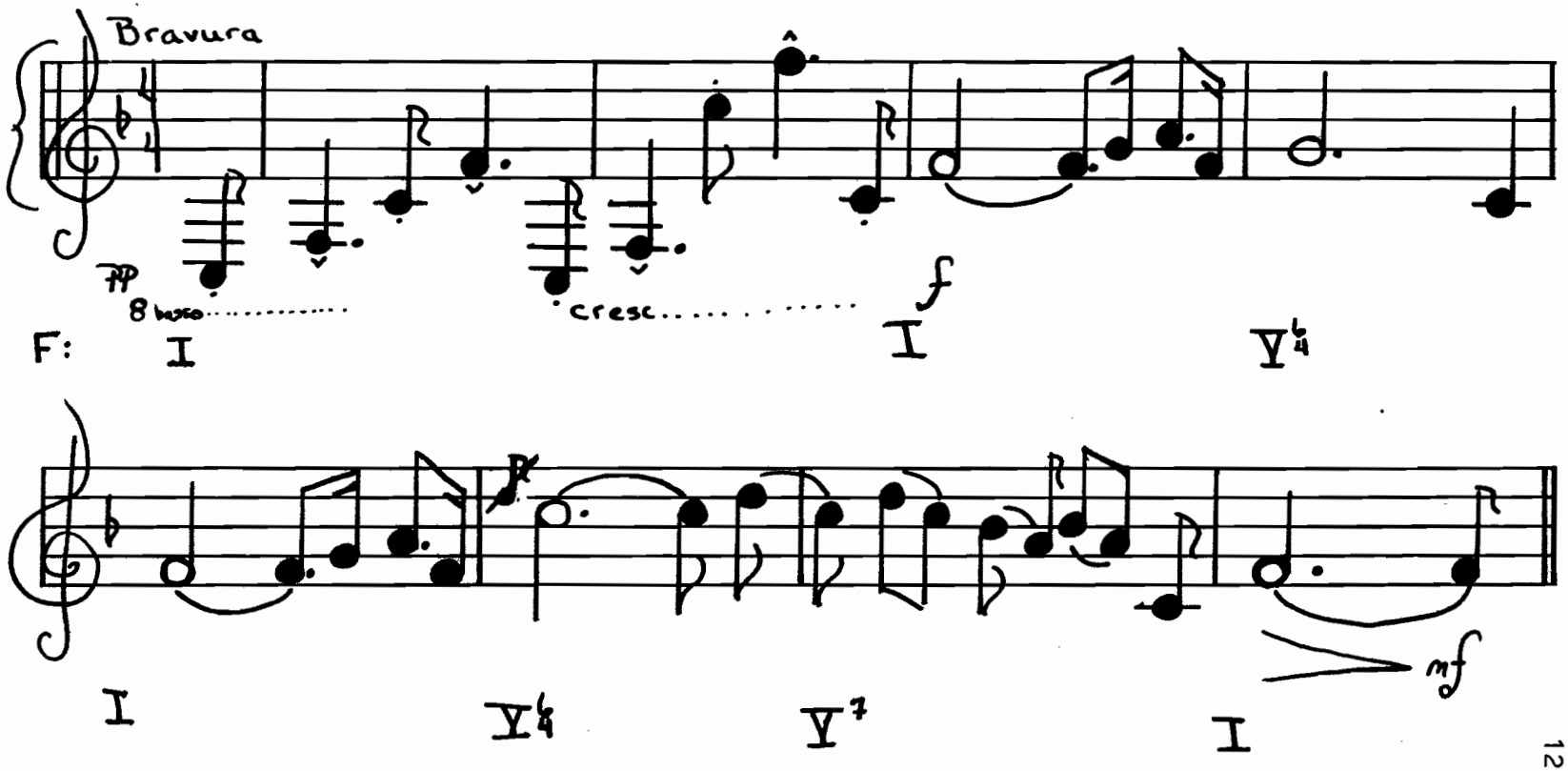
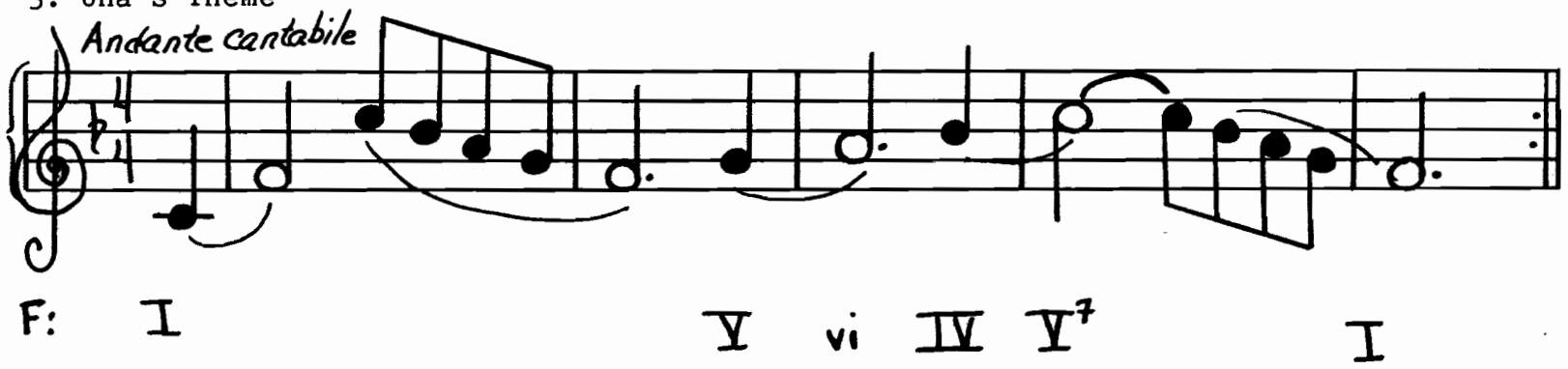
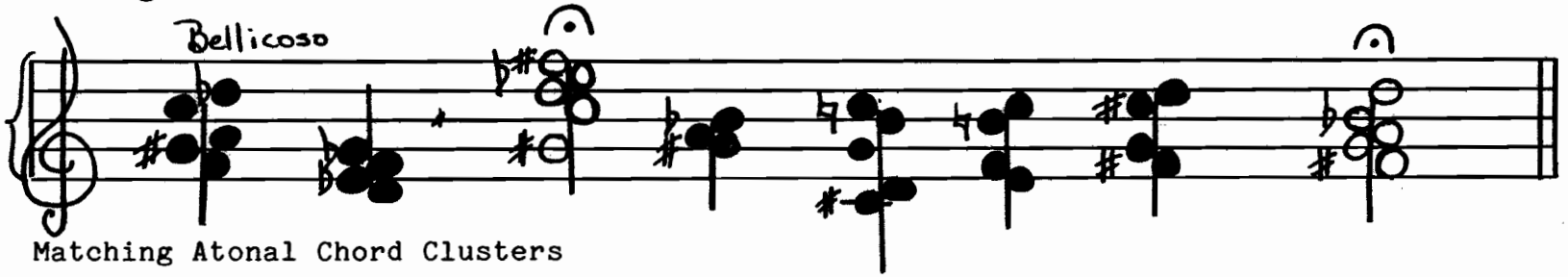


Figure 9 (continued)

3. Una's Theme



4. Dragon's Theme



Matching Atonal Chord Clusters

Figure 9 (continued)

Table 12

Favorite Stories of Subjects by

Frequency of Mention

Stories listed alphabetically in response groups.

****

Number of Subjects	Title
5	Care Bears
	Charlotte's Web
	No Flying in the House
	The Secret Garden
4	Snow White and the Seven Dwarfs
	The Three Little Pigs
3	The Big Bug
	Cinderella
	James and the Giant Peach
	St. George and the Dragon
2	A Bad Spell for the Worst Witch
	He-Man
	Lyle Books
	Pippi
	Quest for the Gloop
	Red Riding Hood
	Robin Hood
	Star Wars
	Superman
	Transformers
	Wizard of Oz
1	Amelia Bedelia
	Babar
	Bambi
	Bangers and Mash
	Basil Brush
	Beetle Baily
	Berenstain Bears
	Biggest Bear
	Christmas Book
	David the Krocet
	Dr. Doolittle
	Dr. Seuss

Table 12 (continued)

Number of Subjects	Title
1	E.T.
	Fairy Tales of India
	Fantastic Mr. Fox
	Fate of Jeremy Yisck
	Football Crazy
	Frances
	George the Ghost
	Ghostbusters
	A Greek Book
	Grey Rabbit and the Wandering Hedgehog
	Hardy Boys
	Indiana Jones
	The Kit
	Lake "Lucky"
	Legends
	The Lion, the Witch and the Wardrobe
	Little Green Frog
	Little Lost Cat
	The Little Red Hen
	The Littles
	Lost Treasure
	Mad Magazine
	A Magic Book
	Maggie and the Pirate
	The Mayflower
	Mr. Fox
	Mr. Worry
	Now You Can Read
	Old Grapo Lop
	Olga Dapolga
	Peter and Jane
	Peter Duck
	Peter Rabbit
	Le Petite Fille Modélés
	Pig and the Ghost
	Pinkerton Behave
	Pino Qowtes
	Pony Bear and Afellboome
	Postman Pat
	Puss in Boots
	Ramona
	Return To Oz
	Robinson Crusoe
	Rolf Red

Table 12 (continued)

Number of Subjects	Title
1	Ronja
	Round the Christmas Tree
	Run for Your Life
	Smurfs
	Spacebase 2000
	Stanley
	Supergran
	Super Ted
	Swiss Family Robinson
	Thomas Alva Edison
	Thorn Rose
	The Tree Bear
	Unesees 301
	Walt Disney
	Watership Down
	Wonders of Nature
	Wore Fors

Scored Subject Recalls

Example 1

I remember when Una got married with St. George, (episode 29) And..and when the dragon picked up the horse and St. George. Lifted them up. (episode 9) And when St. George killed the dragon. (episode 20)

Example 2

I remember when he he sticked his knife into the dragon's mouth. (episode 20) And cut up the dragon's tail. (episode 14) He dropped down .....and as soon as he dropped down, and so spring water flowed around him, and he went to sleep. And the next day all his wounds were better. (episode 13)

Prompt.

And he killed the dragon. (episode 20 repeated) And the lady, the ladies gave him circles of flowers and the children gave him a crown of flowers. (episode 22)

And this, and this, and this man in a house (pause) And while the princess was resting they went up to the hill and they saw a mountain that reached to the sky and a castle of pearls and diamonds. And there was angels flying around. (episode 4) And and and the king said to him, "Why don't you stay here and rest? You've earned it." (episode 25) And he said, :I've promised the queen of the fairies I'll fight....." (episode 26)

Scored Subject Recalls (continued)

Example 3

There was a man, his name was George. He wanted to fight the dragon that was really very very big. (episode 1) And he could-he could-he was very big. He had very big claws and he could make fire. (episode 7)

One day the boy went out and and went to, went to a big, went down a road and went to a, and the road went to a big mountain. That and beside the mountain you could see a huge, a huge palace and it was filled with gold. And then, and then the princess said, that was beside him, said that they don't need to stay here, they need to go away. (episode 4) So, they went to her father where the big dragon was. (episode 6) Then he heard a thunder and many clouds came. And there was this big storm, then the dragon appeared. He had a huge tail, like a hundred miles away, that went a hundred miles away. (episode 7, repeat)

The man took his sword and fighted (episode 8), but the dragon pushed him down, the dragon came, the dragon took him up with his claws into the air. (episode 9) Then the dra--then the man tried to get him loose. And he kicked with the sword, with the spear in his hand, and the dragon let go. And he fell down. He fell so quickly that he lay on the ground. Then lady thought he was dead, but, which he was. One night when the dragon appears the man

Scored Subject Recalls (continued)

Example 3 (continued)

was, the man was, the man was ready to fight. And the dragon thought he was already dead. So when they fight again the dragon pushed him back, (episode 17) Then one he, he went to the dragon. It was, and he fighted and fighted. The man got him and he was dead. (episode 20)

Then they went back to her father, to the princess's father and said that he was dead. (Episode 25) And then the princess was his. And the king said that the princess was his wife. (episode 27)

Example 4

(Long silence)

Prompt question

I can't remember yet. He chops off the end of the dragon's tail. (episode 14)

Example 5

There was a knight and ah he, they was going to kill a dragon. (episode 1) And he, he went to kill the dragon. At the end he--he--and he killed the dragon. (episode 20)

Prompt question

The king said that he could marry the princess. (episode 27)

APPENDIX B

DATA AND MATERIALS RELATIVE TO CHAPTER IV

Table 13

Specific Episodes Recalled by Subjects in Groups

Control Group

Subject	Episodes	Subject	Episodes
1	14	21	0
2	14	22	1,12,13,19,20,24,26,27
3	6,9,12,13,14,22,23,26,27	23	20,29
4	1,6,7,8,13,14,15,18,19,20,22,29	24	9,20,23,29,30
5	7	25	7,29
6	1,2,3,6,7,8,12,13,17,19,27	26	3,4,7,8,20,22,23,25
7	2,3,4,6,7,8,9,10,12,14,16,19, 20,22,24,25,26,28,30	27	8,19,20,23,25,27
8	2,3,4,5,6,7,8,9,10,11,12,13,14, 15,17,19,20,22,23	28	3,8,20,29
9	0	29	3,8,23
10	3,7,8,22,27,29	30	0
11	7,8	31	3,20,29
12	2,7,8,9,15,20,28,29	32	2,4,20,29
13	17,22,27,28,29	33	1,4,6,7,8,9,17,20,25,27
14	1,8,12,17,19,20,27	34	2,8,24
15	3,4,5,6,7,20,22,26,29	35	1,8,12,13,17
16	20,21	36	1,2,12,20,24,25,26,27
17	3,6,7,10,13,17,20,21,22,25,26,27,28	37	1,6,7,8,20,22,26,29
18	17,19,20	38	1,7
19	1,3,5,6,8,9,10,12,13,14,15,16, 17,19,20,23	39	4,12,13,17,19,20,25,27,29
20	19,25,27,28,29,30	40	6,7,12,20,21,22,28,29,30

Table 13 (continued)

Experimental Group

Subject	Episodes	Subject	Episodes
1	1,3,4,5,20	21	2,4,9,14,19,20,22,24,26
2	4,5,7,8,20,22,29,30	22	1,13,17,19,20,23,24,26,29
3	1,3,8,13,14,19,20,24,27,29	23	0
4	13,14,19,20,29,30	24	7
5	20,24	25	1,2,8,12,13,19,20,21,23
6	1,3,4,5,6,8,13,14,17,19,21,22,23,29	26	1,9,12,13,16,17,20,29
7	1,4,5,7,8,10,12,13,14,17,20,22,29,30	27	6,7,13,14,17,20,22,23
8	8,27	28	1,3,4,7,8,13,17,18,19,20,21,23, 24,27,28
9	8,10,12,14,19,23	29	1,17,20
10	1,3,4,6,7,8,12,19,20,22,25,26,27,28	30	9,10,13,14,17,19
11	8,20,22,23,26	31	0
12	1,3,4,6,7,8,10,13,17,19,20,29,30	32	1,20,27
13	7,10,12,20,29	33	7,14,20,27,29,30
14	4,13,14,20,22,25,26	34	12,13,15,16,19,22,26,27
15	0	35	13,18,19,20,29
16	1,9,10,13,14,20	36	13,14,16,19,20,26,29
17	9,20,29	37	1,3,4,7,9,13,14,16,17,18,20,23, 25,26,27
18	8,20,29	38	1,20,29,30
19	3,14,20,22,24,25,26,29	39	13,20,29,30
20	1,2,3,4,5,6,10,13,20,22,25,29,30	40	0

Table 14

Frequency of Episode Recalls by School

	Control Group			
Episode #	Ams.	St.John's	A.S.P.	A.S.H.
1	2	2	5	1
2	3	1	3	0
3	4	3	1	3
4	2	1	3	1
5	1	2	0	0
6	5	3	3	0
7	6	4	4	2
8	5	4	4	4
9	3	2	1	1
10	2	2	0	0
11	1	0	0	0
12	4	2	4	1
13	4	2	2	1
14	6	1	0	0
15	2	2	0	0
16	1	1	0	0
17	2	5	3	0
18	1	0	0	0
19	4	4	1	2
20	3	7	7	6
21	0	2	1	0
22	5	3	2	1
23	2	1	0	4
24	1	0	2	1
25	1	2	3	2
26	2	2	2	1
27	3	4	3	2
28	1	4	1	0
29	2	4	5	4
30	1	1	1	1

Table 14 (continued)

Experimental Group

Episode #	I.S.P.	Ant.	Rot.	I.S.B.
1	2	5	4	5
2	0	0	1	2
3	2	4	2	1
4	2	5	2	2
5	0	4	1	0
6	1	2	1	1
7	2	3	2	3
8	3	7	0	2
9	2	0	1	3
10	3	2	1	1
11	0	0	0	0
12	1	3	1	2
13	3	4	6	6
14	3	5	3	3
15	0	0	1	0
16	0	0	3	1
17	1	2	1	6
18	0	0	2	1
19	1	5	3	5
20	8	7	8	7
21	0	1	0	2
22	3	4	2	2
23	1	2	1	4
24	1	2	0	3
25	2	1	2	0
26	3	1	3	2
27	0	3	4	1
28	0	1	0	1
29	5	5	6	2
30	1	3	4	0

Table 15

Rank Order of Recalled Episodes by Group

Control Group		Experimental Group	
Rank	Episode	Rank	Episode
1	11	1	11
	18	2	15
2	16	3	28
3	5	4	2
	21		18
4	10		21
	15	5	16
	24	6	5
	30		6
5	28		25
6	2	7	9
	4		24
	9	8	10
	14		12
	23	9	23
	26		27
7	25		30
8	13	10	3
9	1		26
	17	11	7
10	3		17
	6	12	4
	12		22
	19	13	8
	22	14	14
11	27		19
12	29	15	1
13	7	16	29
14	8	17	13
15	20	18	20