ORAL LANGUAGE COMPREHENSION OF VISUAL AND NON-VISUAL MEDIA IN HIGH, MEDIUM AND LOW FREQUENCY TELEVIEWERS AT THE SECONDARY SCHOOL LEVEL

by

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ABSTRACT

The purpose of this study was to explore aspects of secondary students' oral language comprehension by seeking relationships among message presentation mode, televiewing habits and sex. It was carried out among 32 female and 60 male tenth grade students.

Prior to treatment, subjects' viewing frequency was surveyed for six weeks. High, medium and low frequency televiewing categories were determined. Half of the subjects from each viewing category were given a film; half were presented with an audio tape of the film's soundtrack. Subjects were tested for oral language comprehension by a multiple-choice, written test.

The findings indicated that there were no significant differences in test scores between treatment methods or viewing categories. There was, however, significant interaction; low frequency viewers produced higher mean scores for the audio mode and lower mean scores for the audio-visual mode. Although males viewed significantly more TV than did females, as determined by viewing categories, the same pattern of results was obtained for the male and female groups considered separately as for the total group. There were no significant differences between total male and female mean scores on the written test; nor were there differences between male and female mean scores for treatment or viewing category.

Examiners: [redacted]

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CHAPTER I

STATEMENT OF THE PROBLEM

It is an essential job of the educator, especially the language teacher, to assist students in translating experiences into words and word symbols (print) so that they may be efficiently categorized, stored in the memory, recalled, re-examined, manipulated, recombined or acted upon in a number of ways. This ability to translate is a prerequisite to language production and language comprehension (Smith, 1975).

Language, however, is only one symbol system people employ for communication; experiences are also recorded in non-linguistic forms such as music, cartography and mathematics. Semiotics is defined as a general philosophical theory of signs and symbols that deals especially with their function in both artificially constructed and natural languages and comprises syntactics, semantics and pragmatics. Pragmatics deals with the relation between signs or linguistic expressions and their users. Sometimes, as in the case of television, several semiotic forms are combined with language to make a statement. Recognizing this, teachers have used a variety of media to support linguistic presentations. It would seem desirable to ascertain whether or not students' comprehension of linguistic symbols, words, is significantly enhanced by the presence of non-linguistic symbols, such as those present in films and television. Stated another way, the problem

is to discover whether or not information presented through film or television assists comprehension of the linguistic message.

A second aspect of the problem is concerned with individual learning preferences. It may be that film and television enhance language processing for some students and confound it for others; for still others it may have no effect. This study will attempt to discover whether such learning predilections relate to televiewing habits. Students who frequently view television, for example, may process language more effectively when it is accompanied by a video component. Perhaps frequent viewing has influenced the development of verbal fluency; perhaps linguistic ability has influenced viewing patterns.

A third consideration relates to the sex of the student. Educators would be interested to know if males or females watch significantly more television; if they process language more effectively, with or without a video component; and whether or not the language processing and televiewing frequency interacts more for one sex than for another. As in Preston's 1979 study, quoted in Downing (1979), which found sex differences in reading due to cultural factors, it would be appropriate to measure viewing habits and their relation to oral language comprehension in the Canadian culture.

Finally, non-linguistic support may be desirable for students at one level, but may deter verbal fluency at another level, where students rely too heavily on the video component. This study focusses upon

secondary students' television viewing frequency; sex differences in televiewing frequency; students' ability to comprehend oral language with, and without, filmed visual support; oral language comprehension and media preferences; and interactions among the variables.

A number of earlier studies (Bailyn, 1959; Dunham, 1952; Greenstein, 1954; Ridder, 1963a, 1963b; Schramm, 1961; Thompson, 1964; Witty, 1966, 1967) have investigated various aspects of educational television and of education and television interfaces. Long-term effects of television on a culture, however, present a relatively new opportunity for research. It is appropriate to seek additional information about a generation of students whose parents and teachers, for the most part, are products of a television environment.

In summary, the purpose of this research is to measure male and female secondary students' televiewing frequency and to relate it to language comprehension in both an audio and audio-visual situation.

CHAPTER II

REVIEW OF THE LITERATURE

This chapter will review some of the wider concerns about language processing and cognitive development as they relate to various forms of communication, especially television. From that wider consideration, it will focus upon educational research that measures various aspects of television viewing and language performance.

Postman (1979) is fearful that the traditional linguistic communication system is being eroded. He discusses the role of the language arts curriculum in the communication systems of American students. He labels television the "First Curriculum" and contends that the new forms of communication are pervasive and need, therefore, to be dealt with not only as a communications phenomenon, but as phenomena within a changing environment. Postman asserts that spoken and written language represent a superior form of communication and ought to be preserved. He implies that television is an inhibiting factor in traditional linguistic comprehension.

Researchers like Salomon (1978), however, suggest that all media can instruct and that learners can learn from virtually all media. Nonetheless, media are in no way alternative routes to the same fixed ends, as some educational practices would suggest. Salomon (1979) says "...different aspects of media interact with different aspects of behavior, thus undermining a conception of media as invariant

entities" (p. 8). He indicates (1974) that the four factors that underlie the use of media in an educational context are the symbol system, be it words, numbers, pictures; the message, or information to be communicated; the learner; and the educational task. He cautions that "when some special potentialities of some media are being capitalized upon, under some conditions some learners might benefit more in some areas" (1978, p. 38). The research possibilities suggested by his view are vast. Anderson (1980) says the application of critical skills such as reading skills, listening skills or televiewing skills via a particular medium is an acknowledgement that the medium of presentation is an integral part of the message, implying that there are elements of grammar, syntax, symbols, and meaning which are medium-specific and which presumably can be taught (p. 64).

Gross (1974) says that knowledge gained through one symbolic code is not exactly (and sometimes hardly at all) transferable to or through another symbolic code. Education should attempt to provide opportunity to perceive and create in as many as possible symbolic codes and to have access to what has been done by others in that code. He would argue that we cannot find educational short-cuts by substituting one code and/or medium for another; each must be learned.

> What we must always keep in mind, however, is that the emergence of new forms of symbolic skill and knowledge at the higher levels of complexity and sophistication does not in any way reduce the vital importance of competence in the basic modes of cultural intelligence and communication. It is

> folly to assume that new media of technological communication will obviate the necessity for these competencies or provide shortcuts that permit their acquisition without the basic experiences of learning through active performance within the domains of the modes themselves. (p. 78)

Dale (1954) indicates the greater the correspondence between symbol and external referent, the greater the amount of learning should result; his "cone of experience" concept has become fairly widely known. Salomon (1979), however, argues that the important feature of symbols for instruction is the extent to which they correspond with students' internal representations. Suitability of symbols and media through which they are presented would then be determined on an individual basis.

Salomon suggests, moreover, that the symbolic structure, or representational form, of television may have cognitive effects that result in lesser reading abilities. He also indicates that, although no less effort is needed to process various symbolic systems, "non-notational systems, when perceived as depicting lifelike messages, allow shallower processing than notational symbol systems" (p. 64). Non-notational systems, which Postman (1979) labels analogic systems, exemplified by photographs, have a real relationship to what they signify. Notational or digital forms of information are abstract, with no natural correspondences to nature, as in the word man or the symbol π (pp. 52-53). Zuckerman, Singer and Singer (1980) state "...research on the amount of brain activity suggests that there is

more extensive and diffuse brain activity during reading than during television viewing" (p. 167). Gardner, Howard and Perkins (1974) state "Different psychological processes may be involved in working with systems which are essentially 'linguistic' and with systems which are dense, replete, and 'nonlinguistic' " (p. 38). Olson and Bruner (1974) state "Our conclusion will be that different forms of experience converge as to the knowledge they specify, but they diverge as to the skills they develop" (p. 132).

Studies in cerebral hemispheric specialization (Kimura, 1979) indicate that most language processing takes place in the left hemisphere while visual symbols are processed in the right hemisphere. This raises the question of whether or not left hemispheric development is affected by television viewing. In another context, Salomon (1979) summarizes from Gardner (1974) "There are, for instance, indications that a brain hemispheric division of labor corresponds, although complexly, with the distinction between notational and non-notational symbol systems of incoming messages" (p. 50).

Postman (1979) says

> ...it can reasonably be imagined that excessive immersion in nonlinguistic, analogic symbols will have the effect of amplifying the functions of the right hemisphere of the brain while inhibiting the functions of the left. (p. 71)

Zuckerman et al. (1980) make the point from a research perspective.

> From a physiological viewpoint, television viewing may have a deleterious impact on reading because the two activities involve different brain functions....some researchers have expressed concern that television viewing is enhancing a strong preference for or reliance upon global visual representations. (p. 167)

Following the seventy-third meeting of the National Society for the Study of Education, devoted to the topic of media and symbols, Olson (1974) summarizes:

> Yet, it is an indictment of our present state of knowledge that we know neither how to assess the psychological effects of these technologies nor how to adapt them to the purpose of education. The impact of technologies both ancient and modern on children's learning is either negligible or unknown. (p. 6)

He quotes Oettinger (1971) who says "...learning as now measured is largely independent of the details of means" (p. 7). Justification for research on education and media might be provided by Olson's additional comments, which are not unlike Postman's concerns.

> The basis for advocacy of educational technology remains bounded by the antimony of widely shared beliefs in the power of the new technology to substantially improve learning and by the almost half a century of both theoretical research and pragmatic reform....Knowledge about the effects of media and their relation to the educational process would contribute in an important way to the decision which, without that information, shows signs of being made on the basis of a power struggle between publishers, broadcasters, and schoolmen. Which functions could be assumed by the producers and which ones could not is not known....Both educational and psychological research is severely limited by the absence of

> a theory of the structure of the symbols that make up such an important part of our environment, the media that propagate those symbols, and the cognitive consequences of exposing children to them. (pp. 8-9)

The foregoing discussion of literature may provide a framework through which to consider research more specific to televiewing and classroom performance.

Six common ways of estimating a child's viewing time are outlined by Schramm et al. (1961). These are:

1. A general estimate by the parent--parents are asked to remember some recent Sundays and give their best estimate of how much time their child spends viewing television on an average Sunday, for example.

2. A general estimate by children--children are asked to remember their television viewing on some recent sundays and give their best estimate of how much time they spend viewing television on an average Sunday.

3. A supervised diary--for example, a diary kept at school, and filled in each morning under the supervision of the teacher.

4. An unsupervised diary--a diary kept at home and filled out by the children without supervision.

5. Aided recall--children are given a list of the programs available on the preceding day and asked to designate the ones they viewed.

6. Unaided recall--without the aid of a list of programs children report the programs they viewed on the previous day. (p. 213)

A number of studies have found negative correlations between the amount of televiewing and both IQ and scholastic achievement scores (Bailyn, 1959; Dunham 1952; Greenstein, 1954; Lyle & Hoffman, 1972; Ridder, 1963a; Rubenstein & Perkins, 1976; Schramm, 1961; Witty, 1966). Other studies (Furu, 1971; Greenstein, 1954; Hornik, 1978; Morgan, 1980; Ridder, 1963b; Thompson, 1964; Witty, 1967; Zuckerman et al., 1980) have shown negative correlations between television viewing and acquisition of reading skills. Where IQ has been controlled, results have been less significant.

Hornik (1978, 1979) critizes studies that do not control for IQ. He does not, however, suggest that these researchers should utilize nonverbal IQ indicators; nor does he hint at possible causal relationships between televiewing and verbal intelligence test scores. Salomon (1979) defines symbol systems as ways of abstracting or representing experience and as being tied together by rules or syntax. By this definition, those who measure language skills while controlling for verbal IQ are measuring competency in a symbol system while controlling for competency in that symbol system. While this might be justified where a particular aspect of language is being measured, it is by no means clear what particular aspect of language development, if any, is related significantly to televiewing.

Further rebuttals to Hornik's criticisms are numerous. Olson and Bruner (1974) state "The skillful use of a symbol system involves the mastery of both its structure and its rules for transformation. Once mastered, these skills may be considered to be 'intelligence,'

primarily because the range of their applicability is virtually open" (p. 144). Gross (1974) says "Skillful action in a symbolic mode is intelligence and knowledge itself..." (p. 64). Olson (1970) claims "Intelligence is skill in a medium, or, more precisely, skill in a cultural medium" (p. 193). Salomon (1974) repeats:

> Intelligence, as Olson maintains, is skill in a medium. Being skillful or intelligent in this sense means having available the process required for the proper handling of the symbol system represented by any medium. Obviously, individuals differ from each other with respect to their mastery of media-relevant skills, and they differ therefore in the extent to which they extract the 'intended' messages. (p. 396)

Comparing the relative effectiveness of equivalent radio and television versions of a series of background-of-the-news programs for grade six children, Barrow and Westley (1959) found the TV group had significantly higher scores than the radio group on an immediate recall test of factual knowledge. The TV group's score on a delayed recall test was higher than the radio group, but the difference was not significant. However, the radio and TV presentations were prepared separately and, while the content was very similar, the language was not identical.

Potter (1981) details a number of projects in which television has been used to motivate speech and reading, but readily admits "there is a need for research which investigates the efficacy of the various new TV and reading strategies, projects and products" (p. 381). She does

not go beyond this superficial link between reading instruction and commercial television.

Salomon (1979) distinguishes between televised instruction and television instruction.

> ...while a medium's specific blend of symbol systems is potentially available to it, not all of the medium's messages (or 'utterances') necessarily make use of all that symbolic potential. Consequently, we have 'photographed radio' on television news as well as 'television news.' The latter emphasizes the medium's essence and thus is closer to the prototypical case of the medium. Similarly, we have 'televised instruction,' which uses only the medium's technology as a passive recording and transmission device, and 'television instruction,' which capitalizes on the medium's symbolic capabilities. (p. 23)

In the literature comparing the effectiveness of instructional television classes with live classroom teaching and learning, Gordon (1965) reviews the compendia of Kumata (1956), Holmes (1959) and Stickel (1963) and concludes, "students taught by television in widely different kinds of educational situations did about as well--as accomplishment is measured--as students taught by conventional methods." Schramm (1962), summarizing the research on the effectiveness of instruction television, notes that of 393 comparisons between instructional television and live instruction, "in 65 per cent... there is no significant difference. In 21 per cent, students learned significantly more [by television]; in 14 per cent, they learned significantly less from television" (p. 53). He notes, however, that improvement over conventional teaching by televised instruction appeared

most frequently in the primary groups, less frequently in the high school groups, and least frequently in college and university groups. As well, mathematics, science, and social studies had outstanding success for the groups tested; language skills, health, and safety education showed a fair amount of effectiveness on television; history, humanities and literature had the smallest measure of success.

In 1971, however, Schramm admits

> ...human communication seemed a simpler thing in 1952 than it does in 1970....For one thing, neither the psychological nor the social model of the communication process is any longer sufficient by itself. Rather, they must be combined and somehow comprehended together. The social aegis under which the message comes, the receiver's social relationship to the sender, the perceived social consequences of accepting it or acting upon it, must be put together with an understanding of the symbolic and structural nature of the message, the conditions under which it is received, the abilities of the receiver, and his innate and learned responses, before we can predict with any real confidence the consequences of an act of communication. (pp. 6-7)

Gordon (1965) hypothesizes that

> ...in all probability the slow learner and the bright learner profit most from televised teaching because bright students learn rapidly under any circumstances and dull children find that their attention is concentrated for them upon the television screen. (p. 86)

More germain to this study, he notes

> There remains also the risk that research of the kind reported by Schramm does not measure the important elements of the learning process. If this is so, of course, then conventional methods of measuring student progress are not valid and we have been chasing a phantom for many, many years. (p. 87)

In addition to the foregoing concerns, recent research (Morgan, 1980; Singer, 1979) indicates that there are significant sex differences in televiewing habits as they relate to a number of academic areas. Singer (1979) found that boys watch more television than girls and suggests it is possible that this visual emphasis tends to increase boys' difficulties in developing verbal skills. Morgan (1980) reports

> ...those with lower IQs watch more television and those with higher IQs watch less. The simple correlation is -.27 (p=.001) and drops only to -.24 when controlling for sex, grade, and SES combined. The association is significantly stronger for boys than for girls. TV viewing is also negatively and significantly related to scores on all eleven achievement tests. The strongest association is with reading comprehension scores. These relationships...are stronger for boys than for girls. (p. 160)... heavy viewers reported reading slightly fewer types of material...despite overall negative relationships, heavy viewing low IQ females both score higher and like to read more types of things. (p. 164)

While most studies relating televiewing to language arts performance have dealt with children no older than the intermediate grades, Morgan (1980) studied subjects from sixth through ninth grades and found that those who were heavy viewers early on [grade six] were the ones who read more later [grade nine]. He found, too, that those who view more over time [grades six through nine] read less, and those who view less tend to read somewhat more. The B.C. Reading Assessment (1980) reports that in grades four, eight and twelve, reading comprehension scores correlated negatively with TV viewing frequency. The negative

correlation coefficient increases from grade four to grade twelve. These figures may reflect a causal relationship or, equally probable, a preference for leisure time activities that match one's skills. The grade twelve figures, however, reflect a population that has lost many of its less able readers; one might expect, therefore, that the correlation would be weaker from grade eight to twelve, rather than stronger.

The final area of consideration is the social setting. In examining short-term general achievement of El Salvadoran children who had recently gained access to television, Hornik (1978) found no obvious effect. He did find consistent negative effects, over a three year period, on reading improvement in all of three cohorts studied. At that, results might have been more significant if one considers that television acquisition correlated very significantly with socio-economic status. Salomon and Cohen (cited in Salomon, 1978) found that middle-class Israeli youngsters in grade four showed more "literate" viewing of television than their Bostonian counterparts.

> Closer examination suggested that a strong social factor may have operated there, causing the Israeli children to be more serious viewers of T.V. and thus to invest more mental energy in extracting meaning from its messages than do their American counterparts. The latter have, on the average, more T.V. sets at home and many more channels from which to choose. On the other hand, viewing in Israel (one channel, one set per home) is more of a family affair and more positively perceived by parents. It appears that the cultural atmosphere (rather than just the number of televiewing hours per day) may have created in the two groups different perceptions of the situations' demand characteristics. (p. 44)

Carey, Harste and Smith (1981) found that interpretation of a written passage was as much influenced by the social setting as by the reader's previous knowledge.

Summary of the Literature

The literature to date suggests two opposing views. One view holds that television's video symbols compete with a viewer's processing of language symbols, the other that they either support a verbal message or provide an alternate message vehicle. Concern has been raised over television's possible influence on language development or brain functioning, but research has not established quantitative support for this concern to date. The age, sex or social setting of the student may be determining factors in any consideration of television viewing and language performance.

CHAPTER III

RATIONALE, DEFINITIONS, HYPOTHESES, LIMITATIONS

In this chapter, which takes into consideration the strengths and weaknesses of earlier studies, and the definitions and concerns formulated by later researchers, the rationale of the present study is outlined. As well, the experimental stimuli, independent variables and the dependent variable are defined. Next, the hypotheses that were determined, and ultimately tested, are stated. Finally, the limitations of the study are specified.

Rationale

Although several of the studies cited in Chapter II related television viewing to reading, and one study compared the effectiveness of a radio presentation format with a television presentation format, further measures of the relationships between presentation modes, televiewing categories and oral language comprehension appeared to be desirable in order for the classroom teacher to better understand some of the factors in operation during this important aspect of language education.

A comparison of student competence in processing the same message both with, and without, a video component would allow insights as to whether or not the presence of a parallel visual symbol facilitates oral language comprehension. Sex differences in viewing habits and

in reading performance have been documented, but any relationship to language processing with, and without, the video component could yield useful information to a teacher for determining effective lesson presentation modes or remedial techniques for individual students.

As the majority of studies reviewed have been directed toward American elementary school children, additional information on secondary students, who are required to process language at ever-increasing levels of abstraction, seemed desirable. As has been pointed out, students in El Salvador and Israel do not necessarily respond similarly to their American counterparts, who are more accustomed to television. The B.C. Reading Assessment (1980) results suggest Canadian findings would be similar to U.S. findings. Because national reading norms differ, however, research with Canadian subjects need not obtain the same results as those in the United States. Similarly, research results from the 1950s and 1960s may not be applicable to students of the 1980s, when viewing may be a solitary rather than social acitivity.

Definitions

Experimental Stimuli

Two presentation modes were employed; one was a film of approximately thirteen minutes duration; the other was the audio portion of the same

presentation. The level of difficulty and interest was appropriate to the subjects, prejudged by a pilot study. The content was secondary English material to which the subjects had not had previous exposure.

The film, The English Language: Its Spelling Patterns, provided information about the development of English spelling patterns and about the results of a study into the applicability of spelling rules. Although an instructor's voice presented the message, the visual component did not feature his presence. Rather, it supported the subject matter itself. For example, when sword was cited as having a previously pronounced 'w', two Middle English sword fighters were shown on the screen, as was the word sword.

Independent Variables

During the six weeks preceding the stimulus presentation, each day students attended an English class, they reported total television viewing time for the preceding day (Appendix A). No attempt was made to determine program content and students were in no way counselled about viewing habits. At the end of six weeks, each subject's total viewing hours were divided by the number of days reported, to determine daily viewing time (DVT). That third of the subjects who had the highest DVT were designated high frequency viewers (HFV); the third of the students with the lowest DVT were designated low frequency viewers (LFV). These three groups, HFV, MFV and LFV, constituted the first variable (Appendix B).

The second variable had two categories. Half of the subjects from each viewing group were randomly assigned to a language presentation mode. One group attended an audio-visual presentation; the other group attended only the audio portion of the presentation.

The research design did not include sex as a third independent variable. Every effort was made to equalize the number of males and females in each of the presentation groups, but one of the hypotheses being tested was whether there would be equal numbers of males and females in each of the viewing frequency groups.

Dependent Variable

A researcher-designed multiple choice written test measured comprehension of the information given in the audio portion of the presentations. The Barrett Taxonomy: Cognitive and Affective Dimensions of Reading Comprehension (Clymer, 1968) was used as a frame of reference for designing questions from each of the following four categories: literal, inferential, critical and evaluative (Appendix C). A balance between presentation length and test length was achieved so that both could be administered within a one-hour period. The test was piloted so that inappropriate items could be amended or eliminated. There were thirty-nine items in the final draft of the test (Appendix D).

Hypotheses

The hypotheses this study tested were:

H_{o1}: There will be no significant difference between males and females in viewing frequency categories (VFC).

H_{o2}: There will be no significant difference in oral language comprehension test scores between students who experienced an audio presentation and students who experienced an audio-visual presentation.

H_{o3}: There will be no significant difference in oral language comprehension test scores among students who are high frequency, medium frequency and low frequency viewers.

H_{o4}: There will be no significant interaction in oral language comprehension test scores between presentation mode and viewing frequency category.

H_{o5}: There will be no significant difference in oral language comprehension test scores between female students who experienced an audio presentation and female students who experienced an audio-visual presentation.

H_{o6}: There will be no significant difference in oral language comprehension test scores among female students who are high frequency, medium frequency and low frequency viewers.

H_{o7}: There will be no significant interaction in oral language comprehension test scores for female students between presentation mode and viewing frequency category.

H_{o8}: There will be no significant difference in oral language comprehension test scores between male students who experienced an audio presentation and male students who experienced an audio-visual presentation.

H_{o9}: There will be no significant difference in oral language comprehension test scores among male students who are high frequency, medium frequency and low frequency viewers.

H_{o10}: There will be no significant interaction in oral language comprehension test scores for male students between presentation mode and viewing frequency category.

Limitations

1. The reporting method of televiewing frequency relied on the integrity of the students. However, no grading was involved, students

were cautioned to be extremely accurate, ample time was allotted for the task and students did not have to reveal content. These factors suggest that there was no reason for students to misrepresent their viewing times. To ensure accuracy of recall, students listed only those viewing days immediately preceding each scheduled English class. Therefore, Friday and Saturday viewing was not reported. The survey period was October and November; viewing frequency may have been different at another time of year.

2. Subjects were limited to one grade level in one school in District #61. These subjects represented the regular and modified programs in the school, but did not represent the enriched or pre-employment programs at either end of the academic spectrum. The findings, therefore, may not be applicable to exceptional students. Because the subjects were studied in pre-constituted classes, there were not equal numbers of males and females.

3. Although there were 92 subjects, the design of the study necessitated six cells - 12 cells when males and females were considered separately - so that it would have been desirable to have had more subjects in order to have larger numbers in each of the cells.

4. The film that was selected for the presentation may or may not be representative of appropriate language content material upon which to base educational conclusions. The 39-item test, although it attempted to measure the various levels of language comprehension, may

not have provided adequate information upon which to assess comprehension. In other words, a different film or a different test could conceivably have produced different results.

5. The study recognizes that television viewing frequency is only one factor influencing the non-linguistic environment.

6. No attempt was made to allow for individual differences or media-related differences for recall.

CHAPTER IV

METHODOLOGY

In this chapter there is a summary of the pilot studies carried out prior to the main study. These studies provided information that was useful in determining the suitability of the film, audio tape and written test. As well, the chapter describes the subjects who participated in the study and the procedure that was followed. The final section outlines the various statistical devices that were employed for analysis of the data.

Pilot Studies

Prior to the study, a television survey form was piloted with two grade twelve classes and with one university graduate class. No difficulties arose with the format of the survey.

Some time later, an audio tape of a selected film soundtrack and a 39-question test were piloted with the graduate class. Two results were obtained. Firstly, the subjects complained that the tape contained sound interference from the projector. Subsequently, a by-pass tape was made that eliminated the noise. Secondly, the test scores produced the results seen in Table 1.

A grade twelve class piloted the improved tape and the same test questions. The sound quality caused no concerns; the test results are shown in Table 1.

Table 1

Correct Test Responses in Pilot Studies

Item	Grad. N = 12	Gr. 12 N = 22	Item	Grad. N = 12	Gr. 12 N = 22	Item	Grad. N = 12	Gr. 12 N = 22
1	11	20	14	4	8	27	11	10
2	1	9	15	12	14	28	12	18
3	9	17	16	12	20	29	6	15
4	12	22	17	6	18	30	5	7
5	8	17	18	12	19	31	9	7
6	12	21	19	12	18	32	12	18
7	4	4	20	10	9	33	10	13
8	11	18	21	12	19	34	12	16
9	9	15	22	12	17	35	7	12
10	8	8	23	12	19	36	12	18
11	9	6	24	6	11	37	11	16
12	12	12	25	11	14	38	10	18
13	10	16	26	11	11	39	10	9

Those items that had fewest correct responses were scrutinized carefully for ambiguity or inappropriate distractors. Another grade 12 class was piloted to measure response to each distractor; no clear pattern emerged. Therefore, it was determined that the test questions,

correct responses and distractors were appropriate as originally constructed. An item analysis of the test produced a Kudder-Richardson 20 reliability coefficient of .76.

Subjects

There were 92 subjects from three regular grade ten classes and one modified grade ten class. These classes did not include students who were enrolled in the school's enrichment program or in the pre-employment program, but were representative of the wide range of abilities and aptitudes that comprise a typical grade ten population. There were 60 males and 32 females.

Procedure

Subjects reported daily viewing time for six weeks. Groups were determined for the viewing frequency variable. Half of the males and females in each viewing frequency category were assigned randomly to the two presentation groups. Subjects were not informed of their group membership nor of differences in presentation modes. They were not informed that the DVT data in any way related to the presentations.

Before the presentations, conducted simultaneously in different, but similar, locations in the school, subjects were instructed, "Pay careful attention. Immediately following this presentation you will be tested on it." The supervisor then commenced the presentation and

stood at the back of the room. Sound quality and volume were the same for both groups.

Upon completion of the presentations, subjects were given the researcher-designed test. Careful precautions were taken to ensure similar environments for both groups during the presentation and testing. Time, noise, space, instructions and supervision were controlled.

Absentees were similarly treated and tested within a week; there were seven absentees.

Analysis of Data

Students responded to the test items on mark sense cards. The results were key-punched and analyzed using SPSS.

Sex differences in viewing frequency categories (H_1) were determined by applying a chi-square test to the numbers of males and females in each of the three viewing frequency groups compared with the total distribution.

After a test for homogeneity of variance produced no significant differences, an Analysis of Variance was applied to the data to test for main effects (H_2 and H_3) and for interaction (H_4). When significant F values were observed, a Sheffé Multiple Comparison of means was employed. Alpha was set at $p < .05$.

Similarly, an Analysis of Variance and Sheffé Multiple Comparison of Means were determined for the female subjects (H_5, H_6, and H_7) and for the male subjects (H_8, H_9 and H_{10}).

A t-test was applied to the overall mean scores of males and females.

CHAPTER V

RESULTS

In this chapter, each of the ten hypotheses will be considered separately. Following a statement of each hypothesis and the documentation of pertinent statistical data, a brief comment on each of the findings is made. The comment is followed by a decision of whether or not the hypothesis is rejected. A summary of the comparisons of male and female mean scores concludes the chapter.

Hypothesis 1 stated there will be no significant difference between males and females in viewing frequency categories.

The DVT for the 92 subjects ranged from 0 - 373 minutes. As predetermined, the bottom third were designated low frequency viewers. These 30 students watched an average of from 0 - 66 minutes per day. The middle third of the subjects (N = 31) viewed from 67 - 133.2 minutes and formed the medium frequency viewing category. The final 31 students formed the high frequency viewing group, and viewed from 133.7 - 373 minutes per day.

An informal survey of the data (Appendix B) prior to statistical analysis indicated that the male students watched more television than the females (LFV = 13 males, 17 females; MFV = 22 males, 9 females; HFV = 25 males, 6 females). A χ^2 test was applied and the result was significant at $p < .01$ (Table 2).

Table 2

Sex Differences in Viewing Frequency

		LFV	MFV	HFV	
Males	Actual	13	22	25	60
	Expected	19.6	20.2	20.2	
Females	Actual	17	9	6	32
	Expected	10.4	10.8	10.8	
		30	31	31	32

$df = 2 \quad \chi^2 = 10.04 \quad p < .01$

These results replicate those found by Singer (1979). Perhaps, as Downing (1979) found that reading was more culturally acceptable for girls, so televiewing is more acceptable for boys. These factors may relate to girls' early linguistic strengths at school. Whether or not the televiewing relates to oral language comprehension will be discussed in hypotheses 3, 4, 6, 7, 9 and 10.

Decision. Hypothesis one is rejected.

Hypothesis 2 stated there will be no significant difference in oral language comprehension test scores between students who experienced an audio presentation and students who experienced an audio-visual presentation. After testing for homogeneity of variance, the ANOVA produced an F value of 3.824 with 1/86 degrees of freedom (Table 3). This figure approached significance, with $p = .054$. The extent, then, to

which those subjects in the audio group surpassed those of the audio visual group on the oral language comprehension test, was almost significant.

Table 3

Total Group ANOVA for Treatment, VFC and Interaction

Source of Variation	Sum of Squares	DF	Mean Square	F	Significance of F
Treatment	112.309	1	112.309	3.824	0.054
VFC	73.238	2	36.619	1.247	0.293
Interaction	184.478	2	92.239	3.141	0.048
Within	2525.833	86	29.370		

N = 92

The mean score for the audio group was 24.02 and for the audio-visual group 21.82 (Table 4). As educators frequently favour a multiple media approach to lessons when the opportunity presents itself, and as the video portion of the presentation in every detail supported the linguistic message, it is noteworthy that the audio group produced better results. Further investigation is indicated in that such minor gains, if replicated, would be welcome in education. At the very least, money and time spent on visual aids in order to augment linguistic messages might be otherwise employed.

Decision. Hypothesis two is not rejected, due to alpha being set at .05. Neverthless, one might hypothesize that, given sufficient

subjects, results might confirm that secondary students' comprehension of oral language, for at least some messages, is better without visual support.

Table 4

Mean Post-Test Scores for Treatment and VFC

	LFV	MFV	HFV	Total
Audio tape treatment	$\bar{X}$ = 26.60* N = 15	$\bar{X}$ = 21.69 N = 16	$\bar{X}$ = 23.94 N = 16	$\bar{X}$ = 24.02 N = 47
Audio visual film treatment	$\bar{X}$ = 20.33* N = 15	$\bar{X}$ = 21.73 N = 15	$\bar{X}$ = 23.40 N = 15	$\bar{X}$ = 21.82 N = 45
Total	$\bar{X}$ = 23.47 N = 30	$\bar{X}$ = 21.71 N = 31	$\bar{X}$ = 23.68 N = 31	$\bar{X}$ = 22.98 N = 92

* p = .0037 (Sheffé)

Difference between means is significant p < .004

Hypothesis 3 stated there would be no significant difference in oral language comprehension test scores among students who are high frequency, medium frequency and low frequency viewers. The analysis of variance produced an F value of 1.247 (Table 3), p=.293, which was not significant.

That is, high frequency viewers did not produce better results for the audio treatment. High frequency of viewing does not appear

to bias students in favour of a visual mode.

Decision. Hypothesis three is not rejected as the mean scores for each of the viewing categories (LFV = 23.47, MFV = 21.71, HFV = 23.68) are remarkably similar (Table 4). Few of the students, however, appeared to spend excessive out-of-school time viewing television (Appendix B).

Hypothesis 4 suggested there will be no significant interaction in oral language comprehension test scores between presentation mode and viewing frequency category. With df = 2/86 and F = 3.141, p = .048 (Table 3), a significant result.

Comparison of the mean scores for each of the six cells (Table 4) showed the greatest differences of means occurred between the low frequency viewers in each of the treatment groups, where the mean score of the LFV group with the audio treatment was 26.60, N = 15 and that of the LFV group with the audio-visual treatment was 20.33, N = 15. The Scheffé Multiple Comparison of Means indicated this was significant at p = .0037. In other words, those students who were low frequency televiewers and who were given the audio tape treatment produced significantly better results than those who were low frequency viewers and experienced the audio-visual, or film, treatment.

The data is too sparse to justify speculation that the video in some way interfered with language comprehension, but could perhaps

support the notion that the audio tape presentation method focused students' attention on the linguistic message. Anderson (1982) claims that, in reading, it is the amount of attention focused upon specific phrases which causes learning.

Again, these results may be related to classroom procedures. Some English teachers employ visual aids for students who may favour such a mode or who may be visually oriented learners. If frequency of tele-viewing correlates with such predilections, high frequency viewers might have been expected to achieve better test scores with the audio-visual treatment. Mean HFV scores of 23.94 and 23.68 (Table 4) do not support such expectations.

Educators should question presentation modes that do not produce better summative results. Studies employing a formative evaluation method would provide further insight into whether or not language processing at the secondary level is affected by parallel presentation of non-linguistic symbols. This would suggest a longitudinal study.

Decision. Hypothesis four is rejected. In the low frequency viewers, particularly, the treatment mode was a very significant factor.

Hypothesis 5, in attempting to explore further the relationships among the effects of treatment, viewing frequency and sex, stated there will be no significant differences in oral language comprehension test scores between female students who experienced an audio presentation and female students who experienced an audio-visual presentation.

Here, the ANOVA produced no significant results, for F = 1.435 and p = .242 (Table 5). As a group, female subjects produced similar test scores for both of the treatment methods.

Table 5

Females ANOVA for Treatment, VFC and Interaction

Source of Variation	Sum of Squares	DF	Mean Square	F	Significance of F
Treatment	35.761	1	35.761	1.435	0.242
VFC	18.606	2	9.303	0.373	0.692
Interaction	157.582	2	78.791	3.163	0.059
Within	647.739	26	24.913		

N = 32

Inspection of the mean scores (Table 6), however, does show that, like the combined male and female group, the female mean score for the audio treatment (24.29) was higher than for the audio-visual treatment (22.20). Again, one must question why educators employ a method of instruction that may have a negative influence on comprehension at the secondary level.

Table 6

Female Mean Post-Test Scores for Treatment and VFC

	LFV	MFV	HFV	Total
Audio tape treatment	$\bar{X}$ = 25.67* N = 9	$\bar{X}$ = 22.40 N = 5	$\bar{X}$ = 23.33 N = 3	$\bar{X}$ = 24.29 N = 17
Audio visual film treatment	$\bar{X}$ = 19.38* N = 8	$\bar{X}$ = 25.00 N = 4	$\bar{X}$ = 26.00 N = 3	$\bar{X}$ = 22.20 N = 15
Total	$\bar{X}$ = 22.71 N = 17	$\bar{X}$ = 23.56 N = 9	$\bar{X}$ = 24.67 N = 6	$\bar{X}$ = 23.31 N = 32

* p = .0266 (Sheffé)

Difference between means is significant $p < .03$

Decision. Hypothesis five is not rejected, but the lower performance in the audio-visual treatment group should be noted by educators. Lesson presentation modes ought to be educationally justifiable if they are to be employed.

Hypothesis 6 stated there will be no significant differences in oral language comprehension test scores among female students who are high frequency, medium frequency and low frequency viewers. Analysis of variance produced no results that were significant, with p = .692 (Table 5).

Here, the mean scores were remarkably similar, with less than a

2-point spread among the three viewing categories where $\bar{X}$ for LFV = 22.71, MFV = 23.56 and HFV = 24.67 (Table 6). There appears to be no basis for concern that televiewing among female secondary students has a positive or negative correlation with oral language comprehension per se.

This finding replicates the result for the entire group, although only six females were in the HFV category, a number too small upon which to draw valid conclusions.

Decision. Hypothesis six is not rejected.

Hypothesis 7 stated there will be no significant interaction in oral language comprehension test scores for female students between presentation mode and viewing frequency category. The resulting F value for interaction was 3.163, which approached significance where $p = .059$ (Table 5).

As the interaction for males and females was significant, it is not surprising that this result was obtained. Again, scrutiny of the mean scores (Table 6) indicates the greatest disparity of scores, where the audio produced a considerably higher mean score (25.67) than did the audio-visual group (19.38), was between the two LFV cells. This difference was significant at $p = .027$. It appears that those students who are low frequency viewers either profit from an isolated linguistic presentation mode, are distracted by the presence of a visual component, or are affected both ways.

The numbers of subjects in the remaining four cells, 3 - 5 students, are so small that any examination of the results could be misleading.

Decision. Hypothesis seven, with alpha at .05, is not rejected. It would appear, however, that the interaction that was observed for the combined male and female group was present for the females as well. Had the number of female subjects been larger, it is possible that a significant result would have occurred. Therefore, this hypothesis, while not rejected, bears further investigation.

Hypothesis 8 stated there will be no significant difference in oral language comprehension test scores between male students who experienced an audio presentation and male students who experienced an audio-visual presentation. The F score for treatment for males was 2.379, $p = .129$ (Table 7). Males in one treatment group did not produce significantly higher test results than males in the other treatment group.

Table 7

Males ANOVA for Treatment, VFC and Interaction

Source of Variation	Sum of Squares	DF	Mean Square	F	Significance of F
Treatment	77.266	1	77.266	2.379	0.129
VFC	123.354	2	61.677	1.899	0.169
Interaction	76.919	2	38.460	1.184	0.314
Within	1754.153	54	32.484		

N = 60

Here the probability factor was quite low and an examination of mean scores (Table 8) shows that once again, the mean score for the audio group (23.87) was higher than for the audio-visual group (21.63). Indeed, it was higher in each of the viewing categories as well. This result, together with the number of male students sampled (N = 60) may permit some speculation that isolation of the linguistic mode could possibly assist secondary students to greater comprehension of oral language. Certainly, further research with more subjects and several presentations would provide useful information.

Table 8

Male Mean Post-Test Scores for Treatment and VFC

	LFV	MFV	HFV	Total
Audio tape treatment	$\bar{X}$ = 28.00* N = 6	$\bar{X}$ = 21.36 N = 11	$\bar{X}$ = 24.08 N = 13	$\bar{X}$ = 23.87 N = 30
Audio visual film treatment	$\bar{X}$ = 21.43* N = 7	$\bar{X}$ = 20.55 N = 11	$\bar{X}$ = 22.75 N = 12	$\bar{X}$ = 21.63 N = 30
Total	$\bar{X}$ = 24.46 N = 13	$\bar{X}$ = 20.95 N = 22	$\bar{X}$ = 23.44 N = 25	$\bar{X}$ = 22.75 N = 60

* $p = .087$

Difference between means $p < .09$

Decision. Hypothesis eight is not rejected, but bears further investigation.

Hypothesis 9 stated there will be no significant difference in oral language comprehension test scores among male students who are high frequency, medium frequency and low frequency viewers. The F value obtained was 1.899, $p = .169$ (Table 7). The frequency of tele-viewing for these students, therefore, did not relate to their oral language performance on the written test.

Examination of the mean scores for each viewing category (Table 8) reveals that the amount of viewing shows no relational pattern to mean scores on the test. It is interesting that this evidence is contrary to fairly widely held opinions of educators and parents that viewing has a deleterious effect upon school performance.

Decision. Hypothesis nine is not rejected, particularly in view of the mean scores that show not even a slight pattern of any relationship between televiewing and oral language comprehension.

Hypothesis 10 indicated there will be no significant interaction in oral language comprehension test scores for male students between presentation mode and viewing frequency category. Here the F value was 1.184 and p = .314, not statistically significant (Table 7). This was interesting in that interaction for the entire group was significant (p = .048) and for the females approached significance (p = .059).

Inspection of Table 8 revealed that the discrepancy between LFV scores for each of the treatments (Audio 28.0 and Audio-visual 21.43) was even greater than it was for the female group or combined group. The difference between the LFV mean scores in the two treatment groups approached significance (p = .087). A lower number of subjects in these cells (N = 6; N = 7) influenced the significance.

Decision. Hypothesis ten is not rejected, but taken with the evidence from the female and combined group data, there does appear to be some evidence that low frequency viewers' performance is not enhanced by the visual component. It could be tentatively suggested that, at least for some messages, and for some students, performance is diminished when the video component accompanies the auditory mode.

Sex Differences

The overall mean score for females was 23.31 (Table 6) and for males 22.75 (Table 7). A t-test showed the 2-tailed probability to be .651, not significant. The audio-tape treatment for females produced a mean score of 24.29 and for males 23.87, while the film treatment was $\bar{X}(F) = 22.20$ and $\bar{X}(M) = 21.63$. In the viewing categories, LFV(F) = 22.71, (M) = 24.46; MFV(F) = 23.56, (M) = 20.95; HFV(F) = 24.67, (M) = 23.44. Only in the MFV group was there more than a slight difference. Small numbers of subjects in all but the overall mean score comparisons made it impractical to test for statistically significant differences.

CHAPTER VI

CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS FOR FURTHER RESEARCH

Following the presentation of results and the discussion of each of the hypotheses considered separately, in Chapter V, this final chapter provides some general conclusions. It describes educational implications suggested by the study's findings and lists some recommendations for further research.

Conclusions

This section will attempt to address the four aspects of the problem stated in Chapter I in light of the findings of the study.

Firstly, the problem was to discover whether or not information presented through film or television assists comprehension of the linguistic message. In the male subjects, considered separately, no evidence was found to support such a contention. In the female group and combined group of subjects, significance was approached, but in a negative direction. Mean scores were better when the linguistic message was without visual support. Perhaps the presentation of visual aids is counterproductive to oral language comprehension for secondary students, both in the product and developmental aspects of the process.

The second part of the problem dealt with individual learning preferences. The study found that students' frequency of televiewing did not produce any significant differences in their ability to perform on the written test for oral language comprehension. Educators who contend that high frequency viewing inhibits learning for many students may need to re-examine their views. The interactive results indicate that teachers' use of television and film may have more bearing on student performance than student viewing habits. While those students who were high frequency viewers did not appear to profit from the presence of the visual component, those who were low frequency viewers performed at a higher level than the overall mean without the visual component, and lower than the overall mean with the visual component. Low frequency viewers seem to be more sensitive to mode of lesson presentation. Perhaps these students are better able to visualize internally; perhaps they are more prolific readers. Such considerations were outside the scope of the study, but would merit investigation in further research.

The third consideration related to the sex of the student. Male students watched significantly more television than did females, but did not differ from the females in overall test scores of oral language comprehension. They did not produce better results for the audio-visual treatment than for the audio treatment; nor did the low frequency viewers perform better than the high frequency viewers. Translated

into classroom procedures, the greater frequency of viewing would not, therefore, suggest different lesson presentation methods for males and females, even if that were practical. It might, however, suggest content for teaching such skills as the detection of bias and propaganda, dramatic criticism, advertising analysis and note-taking. As well, television program content can be used as an effective motivator for reading and writing.

The fourth aspect of the problem related to the grade level of the students who participated in the study. The intention here was to seek information applicable to secondary students. No attempt was made to conduct a parallel study at another level. Findings, therefore, cannot be applied to other age groups. It was informative to note that there was a wide range of viewing frequencies and that the average student viewed between one and two hours of television per day. Other studies (B.C. Learning Assessments) have reported higher viewing frequencies, but the present study's method of averaging DVT over a period of six weeks probably produced a more valid result than those studies that had students estimate their DVT in response to a single question.

Implications

This section will summarize the educational implications suggested by the study, some of which have been outlined in the preceding discussion of results and conclusions.

Knowledge of students' televiewing habits may assist a classroom teacher to develop appropriate motivational entries to particular topics. It may also suggest alternatives to homework assignments. A plot summary, for example, of a television drama is a viable alternative to a plot summary of a short story found in a prescribed text; an analytic essay of a televised football game might replace an analysis of a newspaper article.

Knowing that a non-linguistic component does not always enhance comprehension of a linguistic message and that, in some instances it may detract from comprehension or recall, teachers would want to ensure that extra-linguistic presentations had some educational value before employing such methods. Administrators, too, might be less impressed with the need to purchase certain educational hardware in light of these findings. Student teachers often feel that the utilization of visual aids is perceived by their evaluators as a teaching strength; classroom sponsors feel that time constraints often do not allow such "luxuries" for the full-time teacher. Schools of education should question their bias in favour of multi-media lesson presentations.

It can be fairly said that school people have sometimes registered concern that students view excessive amounts of television. Televiewing has been considered a possible cause of decline in language competence. While there is no conclusive evidence to confirm or deny such allegations,

this study found, at least, that oral language comprehension was not significantly lower in frequent viewers than in casual viewers. Educators should, perhaps, accept the viewing habits of students and concentrate on positive ways to improve oral language comprehension within the school structure.

The evidence showing disparate test score results among low frequency viewers between the audio and the audio-visual treatments suggests separation of such treatments. Students should, firstly, be given the opportunity to focus solely on the language mode. If comprehension is perceived by the teacher to be inadequate, then non-linguistic modes may be utilized in an attempt to assist comprehension. This is a time-honoured teaching method, where a teacher will use blackboard diagrams, for example, to assist students who require further explanation of a verbal message. To provide the iconic parallel before students have had the opportunity to sample the unaccompanied linguistic message is to deny them a valuable educational opportunity, for much of the language they will experience in their lives will have no extra-linguistic support.

Although not strictly within the scope of this study, one might also hypothesize that students should be given the opportunity to sample the linguistic symbols in visual form (reading) before other symbols, be they socio-gestural, musical, mathematical or iconic, are employed. Thus in the study of literature, the filmed version of

a novel or play could be presented after the reading and discussion of the selection, rather than before it is read.

In summary, educational implications for teachers, administrators and teacher education institutions have been suggested.

Recommendations for Further Research

1. A study that employed a larger number of subjects and tested only for differences in the two treatment groups would serve to document whether or not secondary students' comprehension of oral language is indeed better without the extra-linguistic component. The treatment should be repeated so that several presentations, of varying content, duration and difficulty could be utilized. As well, testing instruments could be varied to include the range of evaluative methods used in the classroom. Absence of the viewing category effect would serve to clarify results on the treatment effect.

2. A longitudinal study, measuring language comprehension gains over a period of time, for students who have experienced primarily linguistic or extra-linguistic lessons would add to the educator's knowledge about the effects of presentation mode on the development of language comprehension skills. It may be that students who are accustomed to a multi-symbol approach come to rely upon such support of find it difficult to focus upon the linguistic symbols. Perhaps extra-linguistic support is productive at some levels or for some messages, but not for others.

3. Research that measures possible interference from an extra-linguistic mode, though more difficult to construct, would also provide useful insights. One would want to measure, too, the characteristics of the non-linguistic components. Does film or video tape, for example, due to social conditioning, cause relaxation amongst students? Might the non-linguistic component attract cognitive capacity that would otherwise be directed toward the linguistic symbols?

4. In a similar vein, research should, perhaps, be undertaken to determine whether or not less replete iconic representations assist comprehension of a linguistic message. A simple outline diagram, for example, may be generally more effective than a photograph, depending upon the learning objective.

5. Another avenue of investigation this study suggests is analysis of the characteristics of low frequency viewers to attempt to determine what makes them more sensitive to the mode of message presentation. Included in such a study might be reading habits, word attack skills, demand characteristics for various media and general scholastic performance. One might hypothesize that cerebral hemispheric specialization is operative to some degree.

6. Further research, too, is indicated to determine whether or not language comprehension in the reading mode is assisted by a parallel iconic representation. As in this study, the researcher

would want to ensure that subjects were tested for literal, re-organizational, inferential and evaluative comprehension.

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APPENDIX A

T.V. SURVEY

T.V. SURVEY

Name _____ Sex _____
First Name Last Name

Viewing report for _____ _____ _____
Day of Week Month Date

Session 1 _____ minutes

Session 2 _____ minutes

Session 3 _____ minutes

_____

_____

_____

_____

_____

_____

_____

_____
_____

TOTAL _____ minutes

(Most, all) viewing was done (alone, in company)
To the best of my knowledge, the above report gives an accurate record of the amount of television I viewed yesterday.

Signature _____

APPENDIX B

THREE FREQUENCY GROUPS

Low Frequency Viewers

	DVT (Minutes)	Subject	Sex	Presentation Mode	Test Score
1	0	59	M	Film	28
2	3	12	M	Tape	38
3	15	11	M	Tape	30
4	16	49	M	Film	21
5	17	04	M	Tape	27
6	20	56	M	Film	15
7	23	13	F	Tape	31
8	24.2	48	F	Film	21
9	24.3	10	M	Tape	20
10	25	60	M	Film	26
11	26	15	F	Tape	23
12	33	53	F	Film	22
13	34	03	F	Tape	24
14	35	01	M	Tape	29
15	35.3	61	F	Film	24
16	37.5	08	F	Tape	18
17	39	22	F	Film	22
18	45	54	M	Film	20
19	45.5	02	M	Tape	24
20	46	14	F	Tape	26
21	47	62	F	Film	19
22	51	06	F	Tape	28
23	51.7	50	M	Film	18
24	52	57	F	Film	11
25	61	05	F	Tape	31
26	62	51	F	Film	15
27	64	09	F	Tape	28
28	65	52	F	Film	21
29	66.1	58	M	Film	22
30	66.6	07	F	Tape	22

M = 13, F = 17

Medium Frequency Viewers

	DVT (Minutes)	Subject	Sex	Presentation Mode	Test Score
1	67	74	F	Film	22
2	69	31	F	Tape	25
3	70	29	M	Tape	17
4	77	19	F	Tape	17
5	82.1	64	M	Film	17
6	82.2	73	F	Film	25
7	83	24	M	Tape	31
8	84	77	M	Film	14
9	88	25	F	Tape	28
10	88.2	26	M	Tape	15
11	88.9	65	M	Film	23
12	90	63	F	Film	23
13	95	21	M	Tape	16
14	95.3	66	M	Film	16
15	99.1	23	M	Tape	22
16	99.4	70	M	Film	27
17	107.3	17	M	Tape	26
18	107.6	75	M	Film	19
19	109	16	M	Tape	20
20	113	27	F	Tape	32
21	114	72	M	Film	23
22	116	20	M	Tape	16
23	116.1	71	M	Film	17
24	118	22	M	Tape	24
25	120	68	M	Film	23
26	120	28	M	Tape	31
27	122	76	F	Film	30
28	123	67	M	Film	18
29	125	18	M	Tape	17
30	128	30	F	Tape	10
31	133.2	69	M	Film	29

M = 22, F = 9

High Frequency Viewers

	DVT (Minutes)	Subject	Sex	Presentation Mode	Test Score
1	133.7	81	F	Film	28
2	135	33	M	Tape	11
3	136	92	M	Film	24
4	138	35	M	Tape	29
5	139.1	42	F	Tape	25
6	139.4	86	M	Film	29
7	142	82	F	Film	26
8	146	38	M	Tape	27
9	147	91	M	Film	27
10	150	44	M	Tape	26
11	156	45	F	Tape	24
12	165	79	M	Film	21
13	172	46	M	Tape	27
14	180	89	M	Film	22
15	181	34	M	Tape	21
16	183	85	M	Film	21
17	184	41	M	Tape	29
18	187	80	M	Film	14
19	189	87	F	Film	24
20	191	32	M	Tape	17
21	195	78	M	Film	20
22	197	39	M	Tape	31
23	201	90	M	Film	25
24	205	40	M	Tape	24
25	224	88	M	Film	31
26	238	37	M	Tape	19
27	239	84	M	Film	20
28	277	36	M	Tape	15
29	283	83	M	Film	19
30	297	43	M	Tape	37
31	373	47	F	Tape	21

M = 25, F = 6

APPENDIX C

BARRETT'S TAXONOMY

THE BARRETT TAXONOMY
COGNITIVE AND AFFECTIVE DIMENSIONS
OF
READING COMPREHENSION

1.0 *Literal Comprehension.* Literal comprehension focuses on ideas and information which are explicitly stated in the selection. Purposes for reading and teacher's questions designed to elicit responses at this level may range from simple to complex. A simple task in literal comprehension may be the recognition or recall of a single fact or incident. A more complex task might be the recognition or recall of a series of facts or the sequencing of incidents in a reading selection. Purposes and questions at this level may have the following characteristics.

1.1 *Recognition* requires the student to locate or identify ideas or information explicitly stated in the reading selection itself or in exercises which use the explicit ideas and information presented in the reading selection. Recognition tasks are:

1.11 *Recognition of Details.* The student is required to locate or identify facts such as the names of characters, the time of the story, or the place of the story.

1.12 *Recognition of Main Ideas.* The student is asked to locate or identify an explicit statement in or from a selection which is a main idea of a paragraph or a larger portion of the selection.

1.13 *Recognition of a Sequence.* The student is required to locate or identify the order of incidents or actions explicitly stated in the selection.

1.14 *Recognition of Comparison.* The student is requested to locate or identify likenesses and differences in characters, times, and places that are explicitly stated in the selection.

1.15 *Recognition of Cause and Effect Relationships.* The student in this instance may be required to locate or identify the explicitly stated reasons for certain happenings or actions in the selection.

1.16 *Recognition of Character Traits.* The student is required to identify or locate explicit statements about a character which helps to point up the type of person he is.

1.2 *Recall* requires the student to produce from memory ideas and information explicitly stated in the reading selection. Recall tasks are:

1.21 *Recall of Details.* The student is asked to produce from memory facts such as the names of characters, the time of the story, or the place of the story.

1.22 *Recall of Main Ideas.* The student is required to state a main idea of a paragraph or a larger portion of the selection from memory, when the main idea is explicitly stated in the selection.

1.23 *Recall of a Sequence.* The student is asked to provide from memory the order of incidents or actions explicitly stated in the selection.

1.24 *Recall of Comparisons.* The student is required to call up from memory the likenesses and differences in characters, times, and places that are explicitly stated in the selection.

1.25 *Recall of Cause and Effect Relationships.* The student is requested to produce from memory explicitly stated reasons for certain happenings or actions in the selection.

1.26 *Recall of Character Traits.* The student is asked to call up from memory explicit statements about characters which illustrate the type of persons they are.

2.0 *Reorganization.* Reorganization requires the student to analyze, synthesize, and/or organize ideas or information explicitly stated in the selection. To produce the desired thought product, the reader may utilize the statements of the author verbatim or he may paraphrase or translate the author's statements. Reorganization tasks are:

2.1 *Classifying.* In this instance the student is required to place people, things, places, and/or events into categories.

2.2 *Outlining.* The student is requested to organize the selection into outline form using direct statements or paraphrases statements from the selection.

2.3 *Summarizing.* The student is asked to condense the selection using direct or paraphrased statements from the selection.

2.4 *Synthesizing.* In this instance, the student is requested to consolidate explicit ideas or information from more than one source.

3.0 *Inferential Comprehension.* Inferential comprehension is demonstrated by the student when he uses the ideas and information explicitly stated in the selection, his intuition, and his personal experience as a basis for conjectures and hypotheses. Inferences drawn by the student may be either convergent or divergent in nature and the student may or may not be asked to verbalize the rationale underlying his inferences. In general, then, inferential comprehension is stimulated by purposes for reading and teachers' questions which demand thinking and imagination that go beyond the printed page.

3.1 *Inferring Supporting Details.* In this instance, the student is asked to conjecture about additional facts the author might have included in the selection which would have made it more informative, interesting, or appealing.

3.2 *Inferring Main Ideas.* The student is required to provide the main idea, general significance, theme, or moral which is not explicitly stated in the selection.

3.3 *Inferring Sequence.* The student, in this case, may be requested to conjecture as to what action or incident might have taken place between two explicitly stated actions or incidents, or he may be asked to hypothesize about what would happen next if the selection had not ended as it did but had been extended.

3.4 *Inferring Comparisons.* The student is required to infer likenesses and differences in characters, times, or places. Such inferential comparisons revolve around ideas such as: "here and there," "then and now," "he and he," "he and she," and "she and she."

3.5 *Inferring Cause and Effect Relationships.* The student is required to hypothesize about the motivations of characters and their interactions with time and place. He may also be required to conjecture as to what caused the author to include certain ideas, words, characterizations, and actions in his writing.

3.6 *Inferring Character Traits.* In this case, the student is asked to hypothesize about the nature of characters on the basis of explicit clues presented in the selection.

3.7 *Predicting Outcomes.* The student is requested to read an initial portion of the selections and on the basis of this reading he is required to conjecture about the outcome of the selection.

3.8 *Interpreting Figurative Language.* The student, in this instance, is asked to infer literal meanings from the author's figurative use of language.

4.0 *Evaluation.* Purposes for reading and teacher's questions, in this instance, require responses by the student which indicate that he has made an evaluative judgment by comparing ideas presented in the selection with external criteria provided by the teacher, other authorities, or other written sources, or with internal criteria provided by the reader's experiences, knowledge, or values. In essence evaluation deals with judgment and focuses on qualities of accuracy, acceptability, desirability, worth, or probability of occurrence. Evaluative thinking may be demonstrated by asking the student to make the following judgments.

4.1 *Judgments of Reality or Fantasy.* Could this really happen? Such a question calls for a judgment by the reader based on his experience.

4.2 *Judgments of Fact or Opinion.* Does the author provide adequate support for his conclusions. Is the author attempting to sway your thinking? Questions of this type require the student to analyze and evaluate the writing on the basis of the knowledge he has on the subject as well as to analyze and evaluate the intent of the author.

4.3 *Judgments of Adequacy and Validity.* Is the information presented here in keeping with what you have read on the subject in other sources? Questions of this nature call for the reader to compare written sources of information, with an eye toward agreement and disagreement or completeness and incompleteness.

4.4 *Judgments of Appropriateness.* What part of the story best describes the main character? Such a question requires the reader to make a judgment about the relative adequacy of different parts of the selection to answer the question.

4.5 *Judgments of Worth, Desirability and Acceptability.* Was the character right or wrong in what he did? Was his behavior good or bad? Questions of this nature call for judgments based on the reader's moral code or his value system.

5.0 *Appreciation.* Appreciation involves all the previously cited cognitive dimensions of reading, for it deals with the psychological and aesthetic impact of the selection on the reader. Appreciation calls for the student to be emotionally and aesthetically sensitive to the work and to have a reaction to the worth of its psychological and artistic elements. Appreciation includes both the knowledge of and the emotional response to literary techniques, forms, styles, and structures.

5.1 *Emotional Response to the Content.* The student is required to verbalize his feelings about the selection in terms of interest, excitement, boredom, fear, hate, amusement, etc. It is concerned with the emotional impact of the total work on the reader.

5.2 *Identification with Characters or Incidents.* Teachers' questions of this nature will elicit responses from the reader which demonstrate his sensitivity to, sympathy for, and empathy with characters and happenings portrayed by the author.

5.3 *Reactions to the Author's Use of Language.* In this instance the student is required to respond to the author's craftsmanship in terms of the semantic dimensions of the selection, namely, connotations and denotations of words.

5.4 *Imagery.* In this instance, the reader is required to verbalize his feelings with regard to the author's artistic ability to paint word pictures which cause the reader to visualize, smell, taste, hear, or feel.

APPENDIX D

TEST INSTRUMENT

1. Who worked with the computer?

   a) secretaries
   b) teachers
   c) researchers
   d) university students
   e) high school students

2. Why was the computer project done?

   a) to assess the accuracy of spelling rules
   b) to replace the dictionary
   c) to improve the teaching of spelling
   d) to prepare for bilingualism
   e) to measure the influence of other languages on English

3. What was the computer asked to do?

   a) match spelling to pronunciation
   b) list the most recent spelling rules
   c) correct student spelling tests
   d) suggest more appropriate spellings of words
   e) spell correctly a number of words

4. How many words did the computer spell?

   a) 97 words
   b) 150 words
   c) 500 words
   d) 1,000 words
   e) 17,000 words

5. The words fed into the computer were chosen because

   a) they represented common words
   b) they were common words
   c) they were important words for school work
   d) they represented a well-educated adult's vocabulary
   e) they were too sophisticated for most young people

6. How did the computer know how to spell?

   a) the computer programmers were excellent spellers
   b) rules and principles were previously fed into it
   c) it took into consideration the history of the language
   d) it was sensitive to sound feedback
   e) it represented an international and universal system

7. Where did the required spelling rules come from?

   a) information from the computer itself
   b) trial and error
   c) Greek roots
   d) the dictionary
   e) scientific observation

8. The vowel sound "oy" or "oi" depends upon

   a) its position in the syllable
   b) the meaning of the word
   c) the particular dialect it represents
   d) coming from another language
   e) the stress of each sound

9. How many words did the computer spell correctly?

   a) 10%
   b) approximately half
   c) four-fifths
   d) about 100
   e) all of them

10. Most of the words the computer spelled had

   a) no mistakes
   b) one mistake
   c) two mistakes
   d) three mistakes
   e) four mistakes

11. Why does the speaker refer to American English?

   a) he only knows American spellings
   b) he wishes to distinguish between American and Canadian spelling
   c) American English is extremely different from British English
   d) the computer was made in the U.S.A.
   e) he is addressing American students

12. Spelling patterns do not always work; this is due to

   a) mispronunciation
   b) computer errors
   c) insufficient knowledge of the rules
   d) the development of the English language
   e) ancient history

13. One-fifth of English words, mainly those that refer to common, everyday activities, come from

   a) Latin
   b) Greek
   c) Anglo-Saxon
   d) Gaelic
   e) American English

14. How much of English comes from languages other than Anglo-Saxon?

   a) none of it
   b) very little of it
   c) approximately half of it
   d) most of it
   e) all of it

15. English began

a) from the Bible, approximately at the time of Christ's birth
b) several thousand years ago from Latin
c) about 1500 years ago as Anglo-Saxon
d) in the dark ages, from the warriors
e) in 1066, from the French

16. New words are frequently needed in English because of

a) the loss of old ones in people's memories
b) advances in science and technology
c) the need to conform to grammatical rules
d) provincial and state regulations
e) many immigrants arriving in this country

17. "Chrysanthemum" means

a) Greek sunflower
b) blooming sunshine
c) butterfly yellow
d) golden flower
e) mother's prayer

18. The spelling of English represents

a) pronunciation of an earlier era
b) borrowings from other languages
c) both (a) and (b)
d) present day pronunciation
e) correct rules and principles

19. Borrowed words are not always spelled like English words because

a) they developed differently
b) other languages do not have rules
c) they are made to look different from English
d) other languages are more orderly
e) English isn't a scientific language

20. Words based on Greek roots

a) came into English in ancient times only
b) came into English until quite recently
c) replace better, older words
d) are more accurate than English words
e) are still entering the English language

21. The word "psychology" comes from what language?

a) Greek
b) Anglo-Saxon
c) German
d) Australian
e) French

22. "Psychology" means

a) the logic of languages
b) the study of the spirit or soul
c) the application of interviews
d) the freedom of the butterfly
e) the cycles of the moon

23. English words like "mountain," "fountain," and "curtain" come from

a) World War II
b) Greek scholars
c) Liberalism
d) Norman French
e) Christianity

24. Over the years, what has remained mainly the same?

a) the meaning of words
b) the pronunciation of words
c) the grammar of words
d) the sound of words
e) the spelling of words

25. Why are there silent letters in some words?

a) they come from another language
b) they cannot be pronounced
c) they were once pronounced
d) they represent Greek roots and rules
e) they were dropped when the printing press was invented

26. Spelling may not change rapidly because

a) computers are now used
b) written language is more permanent than oral language
c) most people are good spellers
d) it represents the way we pronounce words
e) there is much influence from other languages

27. What does the schwa sound represent?

a) pronunciation errors
b) Old English consonants
c) pre-historic sounds
d) most unstressed vowel sounds
e) spelling errors

28. What is notable about the term "Worcestershire sauce"?

a) not every letter is pronounced
b) it is spelled exactly the way it sounds
c) it is borrowed from Norman French
d) its spelling has changed in recent times
e) it should be pronounced the way it is spelled

29. What can you do to improve your spelling?

a) say the word to yourself three times
b) write every day
c) think of the history of the language
d) learn spelling rules
e) become a researcher

30. What is the correct spelling of a serious disease?

a) diphtheria
b) diptheria
c) dyptheria
d) ditheria
e) dihptheria

31. How does the addition of a prefix change the spelling of a root word?

a) the consonant is doubled
b) the stress is changed to the first syllable
c) double the consonant for negative words
d) follow the pronunciation rule
e) it doesn't

32. Applying the rule you have just heard, identify the correctly spelled word.

a) missuse
b) dissappoint
c) unnoticed
d) iresponsible
e) disatisfied

33. What was said to be the most valuable help for spelling?

a) phonetics
b) the dictionary
c) historical facts
d) good reading habits
e) a knowledge of many languages

34. Memorizing the spelling of some words

a) shows a lack of understanding of the rules
b) may cause incorrect pronunciation
c) is an unreachable goal
d) ignores the history of the language
e) is the only way to spell some of them

35. The final responsibility for correct spelling rests with

a) the dictionary
b) the publishers
c) the student
d) the teacher
e) the school curriculum

36. Why is English spelling difficult?

a) English has been influenced by wars, invasions and contacts with other cultures
b) the rules have never been clearly defined
c) many people are not well educated
d) other languages are more straightforward
e) English spread to many parts of the world

37. Which list of words has been in the English language the longest?

a) moccasin, Japan, spaghetti, cafe
b) scuba, radar, nuclear, astronaut
c) psychoanalysis, penicillin, pentathalon, xylophone
d) we, man, wool, wood
e) tableau, ballet, palace, envelope

38. What effect did time have on language?

a) people forgot how to spell accurately
b) pronunciation changed, but spelling remained the same
c) more complicated rules were developed
d) a larger variety of spelling was acceptable
e) more Anglo-Saxon words came into use

39. Which statement best summarizes the lesson?

a) Languages change as they are used over the years.
b) The spelling of English reflects its history.
c) Pronunciation remains the same.
d) Spelling never changes.
e) Spelling is the most important skill you can have.

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Title of Thesis

ORAL LANGUAGE COMPREHENSION OF VISUAL AND NON-VISUAL MEDIA IN HIGH, MEDIUM AND LOW FREQUENCY TELEVIEWERS AT THE SECONDARY SCHOOL LEVEL

Autho[redacted]

Judy Morton Waslenchuk

August, 1982