

A COMPARISON OF THE EFFECTS
OF AURAL AND VISUAL MODES OF PRESENTATION
OF MATERIAL IN A TEST OF PRECIS-WRITING SKILLS
ON GUYANESE HIGH SCHOOL STUDENTS

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ABSTRACT

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The present study explores the relationship between students' scores on the aural and visual modes of presentation of a test in précis-writing skills.

A preliminary experiment was effected ($n = 22$). A main experiment was subsequently carried out ($n = 31$). Ss of the main experimental group were high school students, while Ss of the preliminary experiment were undergraduate students, enrolled at Concordia University.

Ss were divided into two groups. The experiment comprised two phases. In Phase I, Ss in Group I organised their responses from Aural sources, while Group II organised their responses from visual sources. This process was reversed for Phase II. Results of only the main experimental group are discussed. Ss scores on the dependent variables were collected and analysed, using F and correlated samples t-test. The test of the hypotheses support the superiority of the visual mode of presentation. t was statistically significant even at $x .0005$ (on the total scores). An examination of Ss scores over trials shows no significant improvement in the scores.

While the visual mode was clearly superior to the aural mode, several factors may have influenced Ss scores, notably, Ss familiarity with testing in the visual mode.

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CHAPTER I

INTRODUCTION

I: THE PROBLEM

Finding optimal strategies through which to present classroom instruction has posed, and continues to pose, a definite challenge to educators, in particular those educators who are concerned with the design of instruction and curricula.

Prior to the mid-1950's which saw the emergence of what is labelled audio-visual instruction as a regular and legitimate component of classroom instruction, material was usually presented to the student by either of two formats, either in a visual mode (i.e. in the form of print) or in an aural mode (i.e. by means of a lecture).

The advent of the electronic media - radio, film, television, audio-tapes, slides and now the computer - and the incorporation of these media into the educational situation, has not only served to diversify the modes of presentation of instruction, but has also generated much debate among educators, on the possible ways by which these media ought to be incorporated into the educational situation. Consequently, most studies dealing with optimal modes of presentation of instruction are, in the main, concerned with a comparative juxtaposition of one form of the electronic media with the print media. (see. Carrier and Clark, 1978).

The hypothesis on which most trait/treatment studies

concerned with 'mode of presentation' have been predicated, is best expressed as:- "persons having high verbal skills will learn best from verbal presentations of information, while spatially skilled individuals will learn most from spatially oriented instruction" (Allen, 1975).

On the one hand such a hypothesis acknowledges the existence of major differences among learners with respect to their entering capabilities and orientation to particular modes of presentation of the instructional materials. On the other hand theories have also been presented which, the authors insist, can serve to optimize learning for the majority of learners regardless of preferred perceptual modes. Among these are the theories of Ausubel (1963); Mager (1962); Rothkopf (1965); Gagné (1968); Briggs (1968).

In exploring the psychology of meaningful verbal learning, Ausubel (1963, 1968) put forward the theory that "advance organizers would aid the learner in the assimilating of the materials to be learnt." The use of advance organizers have been criticised on the grounds that their definition and construction are vague, thereby allowing varying conceptions of what an organiser is. (see Barnes and Clawson, 1975; Hartley and Davies, 1976). Ausubel (1978) defends the use of the advance organizer, defining these as "introductory material at a higher level of abstraction, generality and inclusiveness than the learning passage itself."

Rothkopf (1970) in describing those behaviours which allow learning used the term 'mathemagenic behaviours'. "Questions," he claimed, "stimulate such behaviours." The effects of questions and the mathemagenic behaviours they stimulate, on the process of learning from textual material, have been the subjects of studies by Rothkopf and Johnson (1971), and Rickards and DiVesta (1974).

The Behavioural Objective has been propounded as another means of improving student learning. (Mager, 1962). Its acceptance has not been without controversy however. (see: McDonald-Röss, 1974; Mitchell, 1972), for a refutation of the mis-use of the Behavioural Objective in instruction.

Alternative methods of ordering the content of textual materials have been proposed by Gagné (1968, 1971); Gagné and Briggs (1974); Huntley et al (1976, 1977). These theorists propose a hierarchical ordering of the material to be studied, thereby eliminating any gaps in the students' knowledge and increasing their potential for retention of their learning.

From the conclusions of the various studies, it is obvious that several factors influence learning and retention from textual materials. Tukey (1968) suggests that among the most important factors influencing learning from text are:

- 1: The 'difficulty' of the material (i.e. its readability); (for an indication of how 'difficulty or readability is measured see: Weltner (1970).
- 2: The ability of the individual with respect

to the use of language.

- 3: The amount of time engaged in learning or studying the text.
- 4: The strategy used by the individual when studying the prose material.

These, and other studies, serve to provide a theoretical and methodological framework for the study of learning and retention from textual materials.

LANGUAGE AND RETENTION

The study of learning and retention from aural sources was pioneered by Rankin (1926). In this study, a doctoral dissertation, Rankin found that forty-five (45%) per cent of all students' learning was achieved through listening. The resemblance between the university population and the general, adult population allowed Rankin, in his opinion, to generalize his findings to the total Adult population. Similar findings have been reported by Knowler et al (1945) and more recently by Arrasjid (1973).

Rankin's findings underscore the general importance of the aural mode of presentation of instructional materials.

A clear separation must be made between listening and hearing, two major components of the aural mode, (the other major components are, of course, speech and language).

Barbē and Myers (1971) define listening as "the process

of reacting to, interpreting, and relating the spoken language in terms of past experience and future courses of action."

This definition clearly delimits the act of listening as being "more than passive participation, more than just hearing, which although it implies a reaction, does not necessarily mean that any interpretation is made. (Early, 1966; Duker, 1966; Barbé and Myers, 1971). Listening, Barbé and Myers insist, is really an individual, creative act. Each listener, they claim, brings to the listening situation his experiences, personality, mental set, and manner of thinking. Every interpretation, therefore, is the result of processes peculiar to the individual, thus, while a class of students might all listen to the same lecture, each student will arrive at a different interpretation of that presentation.

The significance of Barbé and Myers' hypothesis vis-à-vis instruction lies in the fact that the aural mode might represent a less efficient mode of presenting instruction, since many students do interpret the material in a manner different to the lecturer's intent. Thus it is important that some systematic form of training in listening (and in Rhetoric) be included in the curriculum.

Commenting on the role of listening in education Crink and Buntley (1971), note that "in the primary grades much more learning is received by listening than by reading." Although the validity of this finding can be questioned i.e. it is

possible that more of the learning which was tested for could have been received by listening; it is noteworthy that they also observe that "as learning intake from reading increases in the intermediate and upper grades, the necessity for careful (and) discriminating listening also increases." They state that, listening is the first communication skill, (the communication skills they consider to be: listening; reading; writing; speech), and they observe that there is an inverse relationship between quantity and quality of listening in the classroom i.e. as the quantity of listening decreases, the demand for quality in listening increases:

There, therefore, seems to be a legitimate case for the investigation of the interaction between the particular modes of presentation which involve these communication skills and the order in which such skills develop.

Studies which have contrasted and compared the nature and the quantity of information comprehended through reading and listening include those effected by Young (1936); Spearritt (1962); Abrahms (1966); and Young (1973). The data gained from these studies failed to establish a clear superiority of either mode, a fact which Young (1973) attributes to the divergences in the tests used in these studies.

II: THE RELEVANCE OF THIS STUDY TO THE DEVELOPMENT OF EDUCATIONAL TECHNOLOGY.

"Educational Technology, as a field of study and knowledge, subsumes a number of diverse roles, which are bound by a common core of academic foundations and professional experience." (Mitchell, 1975). Consequently, one might reasonably expect a variety of concerns to be attached to these diverse roles.

In as much as this thesis addresses itself to the problem of increased efficiency and effectiveness in the teaching-learning process, it becomes relevant to educational technology, which as an area of research into and development of solutions to educational problems must, necessarily, address itself to questions concerning optimal strategies for the presentation of instruction.

The present study falls under that particular branch of educational technology which is labelled Instructional Design.

Instructional Design, explicated by Mitchell (1975), is concerned with "designing effective learning systems." Accordingly, this involves "the specification of instructional objectives; selection and arrangement of instructional communications, materials and activities; implementation; understanding of the underlying research in cognition, perception, motivation and mediating processes."

The objective of this study is best expressed in the question raised by Duker (1966), specifically: "Is learning more efficient by listening or by reading?" The question is not a trivial one, the volume of research related to this question dispels any such notion, but it is to be noted here that the great majority of research is concerned with reading. By contrasting the results obtained through the two modes of presentation an attempt is being made here to discover some of the underlying conditions which facilitate learning in the particular educational situation.

Hopefully the results of this study will verify certain theoretical hypothesis concerning the use of either mode of presentation.

In this researcher's opinion, no test can accurately reflect the full extent of either the testee's knowledge or ignorance, consequently it is not expected that all students would function at optimal competence. However, the construction of the instrument, (a slightly improved version of the test constructed by Huntley et al, 1977), should aid some students in realising their capabilities. This should allow some valid inferences to be made with respect to the results.

SUMMARY

This chapter has introduced the problem, placing it into context and defining its educational parameters. It has also seen the definition of the objective of the study with the projected relevance to Educational Technology, and specifically Instructional Design, being laid out.

CHAPTER II

REVIEW OF THE RELATED RESEARCH

INTRODUCTION

Various studies have been effected in the area of the Language Arts. (The term Language Arts encompasses the areas of Reading; Writing; Speaking and Listening). The majority of these studies have addressed only one component of the Language Arts -- exploring the relationship between variables pertaining to the particular Language Art.

Many of these studies are concerned with Reading.

Reading, which has progressively come to be regarded as the most basic of the three R's (i.e Reading; Writing; Arithmetic) is, now, regarded as a right rather than the luxury it once was (see: The Experimental World Literacy Programme: U.N.E.S.C.O. (1976)). For this reason, it is this researcher's opinion that, it is not surprising to find that studies within the language arts have emphasised the study of reading. This is in agreement with Cohen (1976).

DELIMITING THE PARAMETERS OF READING

Perhaps, not surprisingly, much of the literature on reading is concerned with the acquisition of the skill of reading. Acquiring reading ability is viewed as a problem, not only by teachers and parents, but by the parents themselves. Smith (1973) observes that, "To many people today - children, parents, teachers, researchers and politicians - reading is a problem. There are innumerable books and papers and conferences on the topic of the problem of reading."

Various solutions to the problem have been proposed, most of these are concerned with 'improved' instruction. Smith (1973). Accordingly, several strategies have been proposed to aid the acquisition of reading ability. Included are Dahl and Samuels' 'Hypothesis/Test' strategy, (Dahl and Samuels, 1977), which involves presenting to the learner, four steps, representative of four particular skills which facilitate the acquisition of reading ability.

Alternative strategies have been proposed by Durkin (1972) and Samuels (1974). While Durkin explores the use of Phonology in the teaching of reading, Samuels is concerned with the use of hierarchal subskills in the reading acquisition process.

Psycholinguistics, and particularly the school of 'generative transformational' linguistics, a cognitive approach, which was initiated by Noam Chomsky, (1964; 1965), has been

explored as one possible avenue in the acquisition of reading ability. (Goodman, 1970; 1971; Smith, 1973; Torrey, 1973).

From these, and other studies, several conclusions have been made concerning reading. These include Smith's (1973) observations that, "Reading is not primarily a visual process. Two kinds of information are involved in reading." Smith terms the first kind of information VISUAL information, or in his terms, "one that derives from behind the eyeball."

The second type of information is termed NON-VISUAL information or what is already known about reading, about language, and about the world in general. It seems to follow logically that reading is influenced by social variables acting upon the reader. In fact, Entwistle (1974), theorised that "all facets of the multi-faceted activity we call 'reading' are influenced by social variables - such things as views of one's social group and one's place in it, things in the environment to which one pays attention, the social reinforcement one gets - for the visual cues the child attends to, the variant of syntax he knows, and his store of general information all depend on what social group he belongs to."

Given the concern with social variables, it is not surprising, therefore, that many researchers have concerned themselves with the reading inadequacies of groups perceived as disadvantaged (Torrey, 1973; Simpson-Tyson, 1978; Cureton, 1978; Cagney, 1977). Torrey's work with such a disadvantaged

youth led her to conclude that:-

- 1: Reading is learned, not taught.
- 2: The key question in reading is - "How does something I can say look in print?" or, vice versa, "What does that print say?"
- 3: However useful high verbal ability and high cultural privilege may be in stimulating reading neither is necessary."

There, thus, exists as in most facets of education, considerable discussion with respect to optimal strategies of fostering the acquisition of reading ability. On the one hand it is proposed that reading be taught as a separate subject, while on the other hand proponents can be found who will argue that this is unnecessary, (Spiegel, 1968).

The question, however, does not merely end there. The very nature of the reading skill fosters other questions. Kinsbourne observed that "Reading is a sophisticated and widely disseminated human skill. Its acquisition and its fluent exercise must be considered separately." (Kinsbourne, 1974). Accordingly, the question of how fluent readers operate has preoccupied students of human information processing (Simon, 1967, 1971; Venezky and Calfee, 1970). The problems of the adult learner have been investigated, and while these existing, experimental findings are incomplete they are by no means negligible (e.g. Posner, Lewis and Conrad, 1971).

Developmental psychologists have concerned themselves with the question of how children learn to read, but while there has been some indication of how reading might be taught (Bond and Dykstra, 1967; Chall, 1967), there exists, nowhere within the literature, any certainty about how reading is learned. (Singer and Ruddell, 1970; Williams, 1971). (see Kinsbourne, 1974).

THE SKILL OF LISTENING

With listening, as with reading, research has been varied. However, unlike the language art reading, the language art listening has not been as extensively researched. The reason for this appears to reside in the particular outlook with which listening has, traditionally, been regarded. Unlike reading, listening has never been regarded as a skill or an art which could be taught. It should not be surprising, therefore, that listening as an area of study and research has not been as extensively explored as some researchers seem to feel necessary. For example, Cohen (1976), makes the point that "emphasis has been placed on studying reading," which she describes as the "lesser of the two receptive communication modes." (i.e. of Reading and Listening).

Included among the research on listening are studies investigating and identifying the component parts of listening. (Barbara, 1971; Barbé and Myers, 1971; Lewis and Nichols, 1965).

Studies using Auditory Devices include those by Orr (1968), Kinder (1973); Postlethwait (1965). The communication process and the importance of listening, with respect to the time spent engaged in it, has been researched in the studies of Rankin (1928; 1930), Knower et al (1945). Studies relating listening with other factors have been carried out by Duker (1966; 1971), and Early (1971):

From the studies of Barbara (1971), Barbé and Myers (1971) and Lewis and Nichols (1965), arise several definitions of the process of listening. The most complete of these definitions is the one submitted by Barbé and Myers, who identify listening as "the process of reacting to, interpreting, and relating the spoken language in terms of past experiences and future courses of action." This definition demonstrates the complexity of the skill and is analogous to the definition of reading submitted by Smith (1973). In fact, Barbé and Myers go on to demonstrate this complexity by noting that "viewed in this manner (i.e. in terms of past experiences etc.) it (listening) becomes more than passive participation, more than just hearing. Even though hearing implies a reaction, it does not necessarily mean that any interpretation is made." Thus, interpretation is viewed as the key factor differentiating listening from hearing. Listening, then, should be viewed as an individual creative act, with each listener bringing to the listening situation his/her experiences, personality, mental set, and manner of

thinking. Every interpretation would then result from processes peculiar to the individual, so that even in a group, which has been listening to the same source materials, every individual's interpretation would be different. (Barbé and Myers, 1971).

What basic concepts about listening can then be drawn?

Barbé and Myers posit the following:-

- Listening ability is an effective way of learning.
- Listening ability is governed by the physical, mental, and emotional status of the individual.
- Listening is an acquired skill, and growth advances in an orderly fashion through developmental levels.
- Listening is said to be of three kinds: appreciative, critical and discriminative.
- There must be a purpose for listening, and this purpose governs how we listen.
- Listening and speaking are closely related.

The third concept is very important since it implies that listening, as an acquired skill, can be taught.

It is important to note the underlying thread of motivation within these concepts. Weaver (1972), observed the importance to the listening process, noting that, "How well a person does listen, depends on two factors: his listening habits and his willingness to listen." Weaver also identified three aspects which, he claims, pertain to listening - capacity, willingness, and habits. These aspects, it will be noted, are

not unlike those outlined by Barbé and Myers, i.e. the individual's capacity to listen will surely be governed by his/her physical, mental and emotional states. Similarly, the purpose of the listening activity (as a factor in the individual's motivation to listen) would define the individual's willingness to listen. In like fashion, the listening patterns that the individual demonstrates are directly related to his/her growth and development in the skill.

Researchers in the area of listening seem to approach consensus on these concepts. (Nichols, 1948; Duker, 1971; Early, 1971), thereby allowing these concepts to be regarded as basic premises in the research on listening.

Our concern here, however, must be with the educational implications of the listening process, noting the significant role which listening is expected to perform in the traditional course of classroom instruction as well as the disproportionate amounts of time which both, students and adults, spend in listening as compared to the time they spend reading, writing or speaking. (Rankin, 1926; 1930; Goldstein, 1940; Knower, Phillips and KoeppeI, 1945).

Although these studies are dated, (Rankin pioneered research into the area of listening with his doctoral research "The Measurement of the ability to understand Spoken Language") more recent studies tend, surprisingly, not to dispute the figures presented in these older studies (Petrie, 1961;

Young, 1973; Arrasjid, 1973). Elementary school children, Arrasjid found, spent more than one-half their day listening (to the teacher), high school students spent as high as ninety (90) per cent of their time in listening while undergraduates spent approximately fort-two (42) per cent of their time listening. (Arrasjid's findings with regard to undergraduates approximates those of Rankin's in 1930).

Given the fact that so much of the student's time is spent in listening, it seems appropriate for both educators and researchers to examine the role listening is required to play, within education, with an eye as to whether systematic programmes, leading to improved efficiency in the skill, could be organised.

It is to be noted that, with few exceptions, systematic training in listening as an integral part of any curriculum is not the rule. The Xerox Listening Programme provides a series of exercises designed to improve the student's listening performance. Intended for use in business and industry, the Reading Training Centre of the Guidance Department of this university has, for some years now, incorporated this programme into its remedial Reading Training programmes, as part of a general improvement in the student's communication skills. (Xerox Listening Programme: copyright, Xerox Ltd., 1956).

RELATIONSHIPS BETWEEN LISTENING SKILLS AND READING SKILLS

The processes of Reading and Listening appear to share certain basic skills.

The Sequential Tests of Educational Progress (STEP), 1957, identifies and organises listening skills around four major aspects of what is communicated; i.e. "Main idea; significant details; organization of details; meaning of words." An organization which is not unlike that proposed by Royce Adams (1976), with respect to reading.

Duker (1966), identified and outlined the following basic skills, in the STEP Listening Test. The same skills are tested in the Nelson-Denny Comprehension Test.

I: Plain-sense comprehension:

- 1: To identify main ideas.
- 2: To remember significant details.
- 3: To remember the structure or simple sequence of ideas.
- 4: To demonstrate understanding of denotative meanings of important words.

II: Interpretation (higher-level meanings)

- 1: To understand the implications of the main ideas; to understand what the speaker is trying to do; to see how the main ideas may reveal the speaker's attitudes and prejudices; to recognise the relationship of the speaker's statements to other ideas or to common knowledge.

- 2: To understand the implication of significant details; to understand how the details are pertinent to the speaker's purpose; to see how the details reveal the speaker's attitudes, biases, and prejudices; to see relationships among the details and their validity in the light of common knowledge.
- 3: To understand interrelationships among ideas and to understand the organizational pattern well enough to predict what is likely to follow.
- 4: To demonstrate understanding of connotative meanings of words; to infer meanings from the context; to understand how words are used to create a mood or an aesthetic feeling.

III: Evaluation and application:

- 1: To judge the validity and adequacy of the main idea; to distinguish fact from fancy; to distinguish probable fact from opinion and judgement.
- 2: To judge the extent to which the supporting details accomplish their purpose; to distinguish among relevant and irrelevant details; to judge whether or not more information is needed to prove the speaker's point.
- 3: To evaluate the organization and development of what is said; to be aware of self-contradiction, to recognize the devices the speaker uses to influence the listener's thinking.
- 4: To judge whether or not the speaker has created an intended mood or effect - - and if the

speaker has failed, to understand why.

- 5: To recognise what the speaker wants the listener to do and to recognise ways in which the speaker's ideas may be applied properly in new situations.

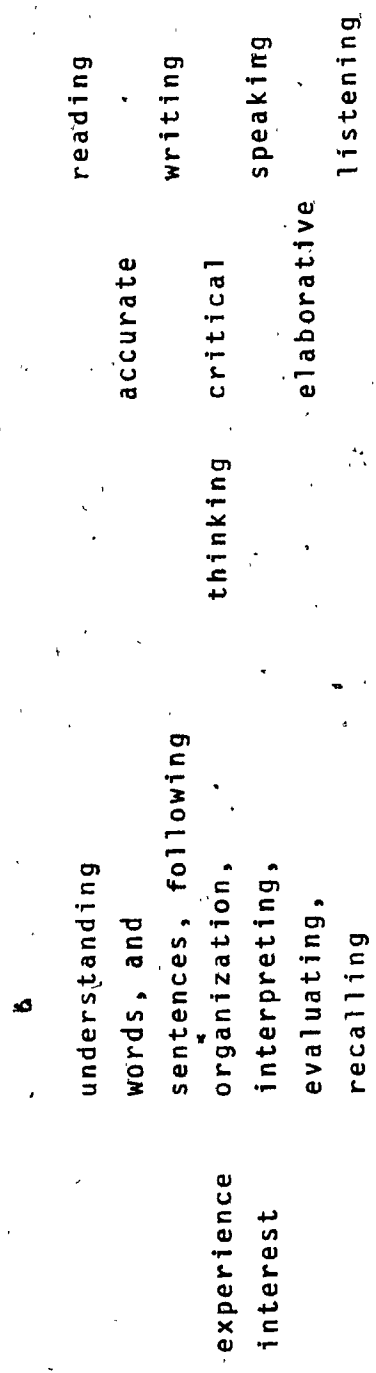
By virtue of these shared skills, the two processes -- reading and listening -- are closely related. The characteristics which Duker attributes to Listening are throughout the literature attributed to Reading, as well. (see e.g. Early, 1971).

In fact, several researchers have posited a parallel relationship between listening and reading. (Lewis and Nichols, 1965; Cohen, 1976). Lewis and Nichols make the claim that, "Listening and reading, the two media through which most of us do almost all of our learning, are in many ways parallel skills". Two claims are made here concerning listening and reading. The first is that they are the most important means of learning and the second that they represent parallel skills.

Early (1971) diagrams the relationship between those factors which influence both the reading and the listening processes as follows.

FIGURE I

RELATIONSHIP BETWEEN FACTORS INFLUENCING READING AND LISTENING



This diagram clearly positions the processes as components of intelligence (as it is usually manifested, that is, by the individual's tangible outputs in the form of answers to test, or writings or speech etc.).

IS THERE A CASE FOR CHOOSING EITHER LISTENING OR READING AS
AN INSTRUCTIONAL DEVICE

The parallel relationship between the two processes, notwithstanding, it is important to note the implications of several crucial differences between the processes of listening and reading.

Among researchers, concerned with comparing the instructional merits and demerits of the reading and listening processes, a consensus seems to have been achieved. This consensus sets out certain advantages accruing to reading e.g. in Reading, the reader is independent i.e. s/he can set and maintain his/her own pace - reviewing, skimming or even stopping as desired. The listener, unfortunately or not, does not enjoy the same advantages. Unless s/he has the speaker captive on tape, he or she is at the mercy of the speaker. Moreover, any break in the listener's attention is potentially more damaging than in the reader's, since the listener may, quite literally, lose the thread of the discourse.

The listener, however, can obtain meaning from what s/he hears by virtue of his/her interpretation of the speaker's gestures and mannerisms. (Early, 1971; Young, 1973; Lewis and Nichols, 1965).

Given what is known to researchers and educators about both reading and listening it follows that platforms, for the

teaching of listening comprehension in schools, have been based on the following three factors (see: Petrie, 1961):

- 1: The frequency with which it is used as a means for obtaining information.
- 2: The influence of listening ability upon the other language arts (i.e. Reading; Writing; Speaking).
- 3: The relative lack of efficiency of Listening as a means for learning (this refers to the pitfalls outlined on the previous page).

Studies which have investigated the factors or variables relevant to the comprehension of material through reading and listening reveal no consistent data which would indicate a general superiority of either process as a method of learning. Young (1973), asserts that "perhaps the only reasonably consistent finding has been that reading and listening skills seem to be correlated," and he cites as examples, Young (1936); Goldstein (1940); Spearritt (1962); and Abrahms. (1966).

In keeping with this assertion, Young points to the somewhat contradictory results of studies by Young (1936), and King (1959), which conclude that young children learn better through listening than through reading, and compares these findings with those of Spearritt (1962), who concluded that older subjects yield more complex and contradictory data.

It seems to this researcher that these results are not entirely unexpected since young children do, in fact, spend

more time listening than do older children (Arrasjid, 1973; Knowler et al, 1945).

The picture is further complicated when one examines the results of such studies as - Corey (1934); and Beighley (1952), which found reading to be a superior learning mode. These results are contrasted with those of Young (1936) and Mowbray (1953), which found that listening was superior for learning material. Still others, (Rulon, 1943; Goldstein, 1940; Harwood, 1955), found the existence of an interaction between the particular mode of learning the message and the difficulty of the message. This last finding might have as much to do with learner aptitude and learning style as it has with the difficulty inherent to the message.

Part of the reason for the inconsistency of the findings seems to be contained not only within the testing instrument (Spearritt used the Australian Council of Educational Research Reading Test which measured three subskills, while the Nelson-Denny test, used by Abrahms (1966), provided one general comprehension score.); but also, within the modes themselves.

Young (1973), advances the argument that "the discrepancy in opportunity to either re-read material presented in the static printed mode or to re-hear material which is presented in the speaker-controlled, aural mode." accounts for some of the inconsistencies in the findings. This line of argument led to Young's (1973) experiment which compared Reading and

Listening comprehension and retention when the rate of presentation is controlled. His results indicate that under the particular experimental conditions, neither method seemed superior for the recalling of facts or ideas or for the generating of valid inferences, with both Readers and Listeners scoring about the same on both the immediate and the delayed tests.

Experiments with controlled speech have shown that while the 'normal' reading rate is approximately 275 w.p.m., that it is at this presentation rate that listening comprehension decreases significantly.

How do these findings influence the present study?

The results of these studies seem to indicate that any research into this area ought to take into consideration, not only the inherent differences peculiar to the two modes, but also the purpose of the testing instrument and the motivation of the learner.

In order to eliminate some of the ambiguities, referred to on the previous page, vis-a-vis the true purposes of those testing instruments used to administer tests of Listening and Reading Comprehension, this study proposes to hold the test instrument constant while varying the mode of presentation of the instrument. Consequently, one variable within the experimental design will concern the sequencing of presentation of the testing modes.

The sequencing of instruction, and particularly the hierarchical sequencing of instructional material, with respect to its implications for both learning and teaching has been the concern of several researchers (Gagné, 1968; 1971; 1974; Huntley, 1976; Huntley et al, 1976; 1977; Daehler, 1976).

Standardized skill hierarchies, it has been claimed, allows the diagnosis of student deficiencies, which is an important component of instructional planning, (Gagné and Briggs, 1974). Once a skill hierarchy has been identified, either through task analysis or through the use of pre-tests, the results of which have been scaled into an empirically determined, instructional sequence (by a curriculum specialist) according to a tested and prescribed method, then the design of an optimal instructional strategy (i.e. in terms of the deficiencies and needs of the learner) can be effected, (see: Huntley et al, 1976).

The Transfer/Reversal/Deletion/Analysis formula has been suggested by Huntley (1974), as being one method for empirically determining an instructional sequence.

The testing instrument to be used was devised using the Transfer/Reversal/Deletion/Analysis formula, and has been empirically tested by Huntley et al (1977). Further validation of the testing instrument was achieved by Siliuskas (1977).

READING AND LISTENING AS COGNITIVE PROCESSES

Perhaps, however, part of the ambiguity surrounding the conclusions of research into Reading and Listening may reside in the cognitive processes the two activities either draw on or stimulate.

Research into perception asserts the possibility of the processing of all phenomena which is available as sensory information (Posner et al, 1972). Perception, which is an internal and mental process seems to involve the existence of some pre-ordained memory track which allows quick comparison of the phenomena to be perceived for recognition and response.

Neisser (1976) relates this memory track to what, he terms, schemata. Neisser proposes a 'perceptual cycle', rather than a strictly linear process and identifies the 'schema' as a crucial part of the cycle. These 'schemata' are cognitive structures, which are not physically isolated structures in the brain, and which, via anticipatory explorations, come to terms with the information presented by the environment. Schemata, in effect, direct perceptual activity and are, in turn, modified by this activity.

Neisser claims that these schemata are embedded in other, more inclusive, schema on a hierarchical, contextually, founded basis.

Hierarchical structures exist not only in the cognitive level but on a physical level, as well. The individualisation of instruction and the devising of curriculums to meet the needs of specific populations have, in the past, prompted the construction of learning hierarchies, (Gagné, 1968; Huntley et al, 1976; 1977). Using the Transfer/Reversal/Deletion Analysis formula previously cited, Huntley et al (1976) devised skill hierarchies for individual students. Using these instructional hierarchies it was found that the learning process was facilitated such that only 13.2% of the skills taught remained unknown on the post-test covering all skills. (This was an appreciable gain over the pre-test results).

The present testing instrument is indicative of work in this area, but the specific question which the use of the testing instrument raises, with respect to reading and to listening, has to do with the relation of those cognitive structures involved in the two processes with a précis-writing skills hierarchy.

Neisser (1976), contends that "not only reading but also listening, feeling and looking are skillful activities that occur over time. All of which depend upon pre-existing structures, called schemata which, (as has been previously noted), direct perceptual activity and are, (in turn), modified as this occurs. Not to be confused with Neisser's perceptual map, these schemata are to be regarded as "portions

of the entire perceptual cycle, which is both internal to the perceiver, modifiable by experience, as well as being, somehow specific to what is being perceived," (Neisser, 1976).

The activities of Reading and Listening seem, logically, to require the existence of individual, specific schemata which allow comprehension and interpretation of the material which is being presented.

Noam Chomsky's (1965) definition of a 'generative grammar' seems to provide an adequate schemata through which the learner might both comprehend and interpret material which is presented in either a printed mode or an aural mode. According to Chomsky, a generative grammar may be defined as, "a system of rules that in some explicit and well defined way assigns structural descriptions to sentences." Thus, as the individual listens to or reads material, he or she must, constantly, be attempting to structure the material by such a system of rules, if maximum knowledge is to be gained from the material.

It ought to be clear that, ordinarily, individual perception of what is appropriate or correct may vary widely and consequently, subjects may identify vastly differing entities as the main idea of a particular passage or sentence, to which they have been asked to respond.

In writing the test of précis-writing skills, the subjects may be aided by the arrangement of the items into the skill components of the specific, learning hierarchy. Ultimately,

however, the subjects' responses may well depend upon their perception of what constitutes an appropriate or correct response. To an unknown extent, then, it is conceivable that any measurement of subjects' scores on the précis-writing, skills test, will include a measurement of subjects' perception of the appropriateness of a response rather than, strictly, the subjects' absolute certainty of the correctness of the response.

SUMMARY

This chapter discussed the language arts of Reading and Listening and attempted to situate the question within a theoretical framework, supplied by research into the area.

As components of the language arts, research into the area has given prominence to Reading rather than Listening. This emphasis has not been without controversy, Cohen (1976), observes that "emphasis has been placed on studying Reading" which, she describes, "as the lesser used of the two communication modes" (i.e. of Reading and Listening).

Perhaps the preoccupation with Reading may be a reflection of its traditional position within the school curriculum, more importantly, however, this preoccupation with reading, particularly with the acquisition of reading skills, has allowed definition of Reading. Smith (1973), observes reading

to be "not primarily a visual process." In Smith's estimation, two kinds of information are involved in the reading process -- Visual and non-Visual.

Listening, though not as extensively researched as Reading, has been defined by Barbé and Myers (1971), as the "process of reacting to, interpreting and relating the spoken language in terms of past experiences and future courses of action." This definition is clearly analogous to the definition of Reading offered by Smith (1973). In fact, the relationship between those factors which influence both the Reading and the Listening processes are aptly diagrammed by Early (1971).

This diagramming of the relationship between Reading and Listening reflects the parallelism between the two learning modes, though Reading does seem to present certain, intrinsic, advantages over Listening, with respect to the learner's ability to set and maintain his or her own pace, although the listener may well benefit from the ability to obtain meaning from the speaker's gestures and mannerisms.

This ambiguity, about the advantages of Reading or Listening as a learning mode, is reflected in the findings of studies which have investigated the relationship between the two modes. Within the literature, no clear superiority, of either mode, has been established, e.g. Beighley (1952), found Reading to be a superior learning mode, while Harwood (1955), found Listening to be superior.

This controversy prompted Young (1973), to observe that, perhaps the only fact of which one can be sure, is that Reading and Listening are somehow related. He, further, questioned the testing instruments which were used to assemble the data and argues that tests were used which, in effect, measured differing skills e.g. Spearritt's (1962), use of the Australian Council of Educational Research Reading Test which measured three sub-skills only, as opposed to, Abrahms' (1966), use of the Nelson-Denny Comprehension Test which provided a general comprehension score.

These findings about Reading and Listening were, further, examined in the light of Neisser's (1976), cognitive schemata and Chomsky's 'generative grammar'. Both Neisser's schemata and Chomsky's 'generative grammar' are seen as providing a perceptual framework, which allows the comprehension and processing of material which is presented in either mode.

In conclusion, although the review of the related research failed to establish any clear superiority of either Reading or Listening, as an instructional medium, much valuable information has been gained, with respect to the nature of the two processes and the ways in which they are related, most importantly in the cognitive field.

CHAPTER III

METHODOLOGY

INTRODUCTION

The literature reviewed in the previous chapter does not establish any consistent superiority for either the print or the taped (aural) mode, as an instructional medium. It has been suggested by Young (1973), that the superiority of either mode, as an instructional strategy, might be contingent upon, any or all of the following factors i.e. the age of the learner; learner interests; learner response to the particular mode. In addition, Young (1973), suggests that the difference in test results might be traceable to the test themselves.

STATEMENT OF THE HYPOTHESES

In this study, where the testing instrument is held constant while its format varies, one might expect to formulate a truer picture of the influence of either mode on the subjects' response patterns. Accordingly, the following hypotheses are proposed:-

H₁ -- In a test of précis-writing skills students, using the global skill and sub-skills of précis-writing, will be better able to organize their responses when working from a visual (printed

page) source passage.

H₂ -- That the total scores of all second time trials will be significantly improved over the total scores of all first time trials.

RATIONALE FOR THE HYPOTHESES

While most studies fail to establish any clear superiority of either reading or listening as a learning method, they do show a correlation between the two modes. Consequently, studies like those of Corey (1934), and Beighley (1952), which concluded that reading was a superior learning method, together with the subjects' experience with the visual mode, makes reasonable the expectation that students should perform better when working from a visual source. Thus Hypothesis 1 responds to findings within the literature, e.g. King (1959), which support the greater efficiency of the visual mode as a learning medium.

Hypothesis 2 responds to this researcher's concern with the cognitive processes related to memory and short term learning, and is directed towards finding out whether a significant increase in learning, over repeated trials, occurred.

THE EXPERIMENTAL GROUPS OF THE MAIN EXPERIMENT

Thirty-one (31) students enrolled in Form IV A of the Bishops' High School, Georgetown, Guyana, formed the experimental group. The group was composed of fifteen (15) males and sixteen (16) females. This group was not streamed according to academic ability but these students had all received systematic instruction in the fundamentals of précis-writing and had been chosen specifically because of this previous experience.

These students, unlike the Concordia students, all spoke English as their first language. They had not been previously exposed to a Language Laboratory, but were sophisticated in their knowledge of the use of audio-tape cassette players. In this, they resembled the Concordia group. In fact, the major differences between the groups lay in the fact that the Concordia students were:-

- a) adults
- b) enrolled in a Remedial English class.
- c) not all English first language.

Students were tested neither for Intelligence Quotient nor reading levels. Although an argument might be presented justifying the effecting of such tests, this could not be done given the existing constraints. While such tests are, as a rule, desirable, they were not felt to be absolutely necessary

in this instance since these students had all been successful at the Common Entrance Examination.

The Common Entrance Examination is the equivalent of the British 11plus examinations. It comprises three (3) sections: An Arithmetic; 'Intelligence' or verbal reasoning; and a written English section. Success at the examination is contingent upon success at all three sections. Consequently these students would all have high intelligence quotients of similar levels.

The degree of emphasis which is placed on the acquisition of reading skills is great, especially prior to the common entrance examinations. Accordingly it was felt that the Ss would not, necessarily, have to be tested on either of these two counts.

In sum then, while testing for neither reading nor intelligence levels was effected this omission was not regarded as being prejudicial to the results of the experiment.

THE EXPERIMENTAL DESIGN

In both the Main and the Exploratory experiments there were two experimental groups. The subjects were assigned, by a quasi-random process, into two groups:-

Group I -- Ss first organising their responses from the aural mode of the test (Phase I), and

subsequently, organising their responses from the visual mode of the test (Phase II).

Group II -- Ss first organising their responses from the visual mode of the test (Phase I), and subsequently, organising responses from the aural mode of the test (Phase II).

The phases of the experiment can be diagrammed, as follows, in Figure II.

FIGURE 2

DIAGRAMMATIC REPRESENTATION OF THE
EXPERIMENTAL DESIGN

PHASE I (EARLIER)	PHASE II (LATER)
<p><u>GROUP I</u></p> <p>Ss organising responses from aural sources first n = 15</p>	<p><u>GROUP I</u></p> <p>Ss organising responses from visual sources second n = 15</p>
<p><u>GROUP II</u></p> <p>Ss organising responses from visual sources first n = 16</p>	<p><u>GROUP II</u></p> <p>Ss organising responses from aural sources second n = 16</p>

Clearly the design used in this research study is an experimental one. Using Campbell and Stantley's (1963) notation code, the design of the experiment can be presented thus:-

$$\text{Group I} = X_1 \ 0 \ X_2 \ 0$$

$$\text{Group II} = X_2 \ 0 \ X_1 \ 0$$

The confidence level for the acceptance (or rejection) of the hypotheses presented in this study was set at α .05, this takes note of the population size and the experiment itself.

THE VARIABLES

Within this experiment the independent, treatment variable was the mode of presentation of the source passage.

This is an independent variable with two levels:-

- 1: The Aural Mode (audio-tape, cassette).
- 2: The Visual Mode (printed page).

The dependent variables were:-

- 1: Listening comprehension and item identification (as indicated by the scores on the taped (aural) mode of the test).
- 2: Reading comprehension and item identification (as indicated by the scores on the printed (visual) mode of the test).

The Intervening variables in the study, were identified as being the order of trial of the test i.e. whether it was the subjects' first trial of the materials, or the subjects' second trial, regardless of the mode of the test.

OPERATIONAL DEFINITIONS OF THE VARIABLES

The following variables need to be operationalised, in order to eliminate any ambiguities in interpretation:-

Aural mode -- Aural refers to the ear, consequently, material

which is presented on an audio-tape or cassette, and which the student listens to, is material presented in the aural mode.

Visual mode - material which is presented in the form of print or pictures. In this study the material is presented in print.

THE TEST INSTRUMENT

This study, investigating the relationship between précis-writing skills and listening comprehension, and précis-writing skills and reading comprehension, utilizes an improved version of the test in précis-writing skills developed by Huntley, Farrell, Coleman, Northy, Siliauskas and Stoloff (1977). (See: Appendix I for copy of this, improved, version of the précis-writing skills test).

The test items had been previously validated by its devisors. For our purposes, however, it was found that item 'F' of the original test had to be omitted, since its somewhat ambiguous nature presented too much difficulty. (The test was previously administered to students enrolled in Loyola Evening Students' Association writing programme, March 1978.

The test in précis-writing skills measures the following thirteen sub-skills of précis-writing:-

- 1: Choosing the main idea of a paragraph.
- 2: Writing the main idea of a paragraph.

- 3: Recognising relationships among the main ideas of paragraphs.
- 4: Choosing the main idea of a text.
- 5: Writing the main idea of a text.
- 6: Choosing the best paraphrase.
- 7: Writing a good paraphrase.
- 8: Combining simple sentences.
- 9: Condensing a sentence to required length.
- 10: Combining, condensing and paraphrasing related sentences into one sentence of required length.
- 11: Writing an outline of a given text.
- 12: Writing a clear sentence based on outline points.
- 13: Writing a précis of a passage to a required length.

These skills were arranged in hierarchical order, with the skill of choosing the main idea of a paragraph (skill 1), representing the lowest level of the précis-writing skills hierarchy, and the skill of writing a précis of a passage to a required length representing the highest level of the précis-writing skills hierarchy, (skill 13).

TEST ITEMS AND SKILL MEASUREMENT

The measurement of subskills one (1) to five (5) -- choosing the main idea of a paragraph; writing the main idea of a paragraph; recognising relationships among the main ideas of paragraphs; choosing the main idea of a text; writing the main idea of a text -- required students to respond to questions

based on short passages provided in the test. (Item G of the improved version of the test):

Measurement of the subskill of choosing the best paraphrase was effected by the two multiple choice sub-items of item 'A'; while the sub-skill of writing a good paraphrase was measured by items 'C' and 'E'. The sub-skill of combining simple sentences, (sub-skill 8), was measured by the sub-items of item 'B'.

Sub-skills nine (9) and ten (10) -- condensing a sentence to required length and combining, condensing and paraphrasing related sentences into one sentence of required length are measured in items 'C' and 'E'. These items require the student to produce a single sentence of stipulated length.

Sub-skill eleven (11), writing an outline of a given text, was measured by item 'F' of the improved text; while item 'C' measured the sub-skill twelve (12), which required the student to write a clear sentence based on outline points.

Item H, which requested students to condense a passage of approximately one hundred and fifty (150) words into a précis of no more than forty (40) words, measured the global skill of précis-writing -- the highest level of the précis-writing skills hierarchy.

The original item 'F', which was deleted from the improved version of the test, had measured the sub-skill of writing the best paraphrase, a sub-skill which was incorporated into items

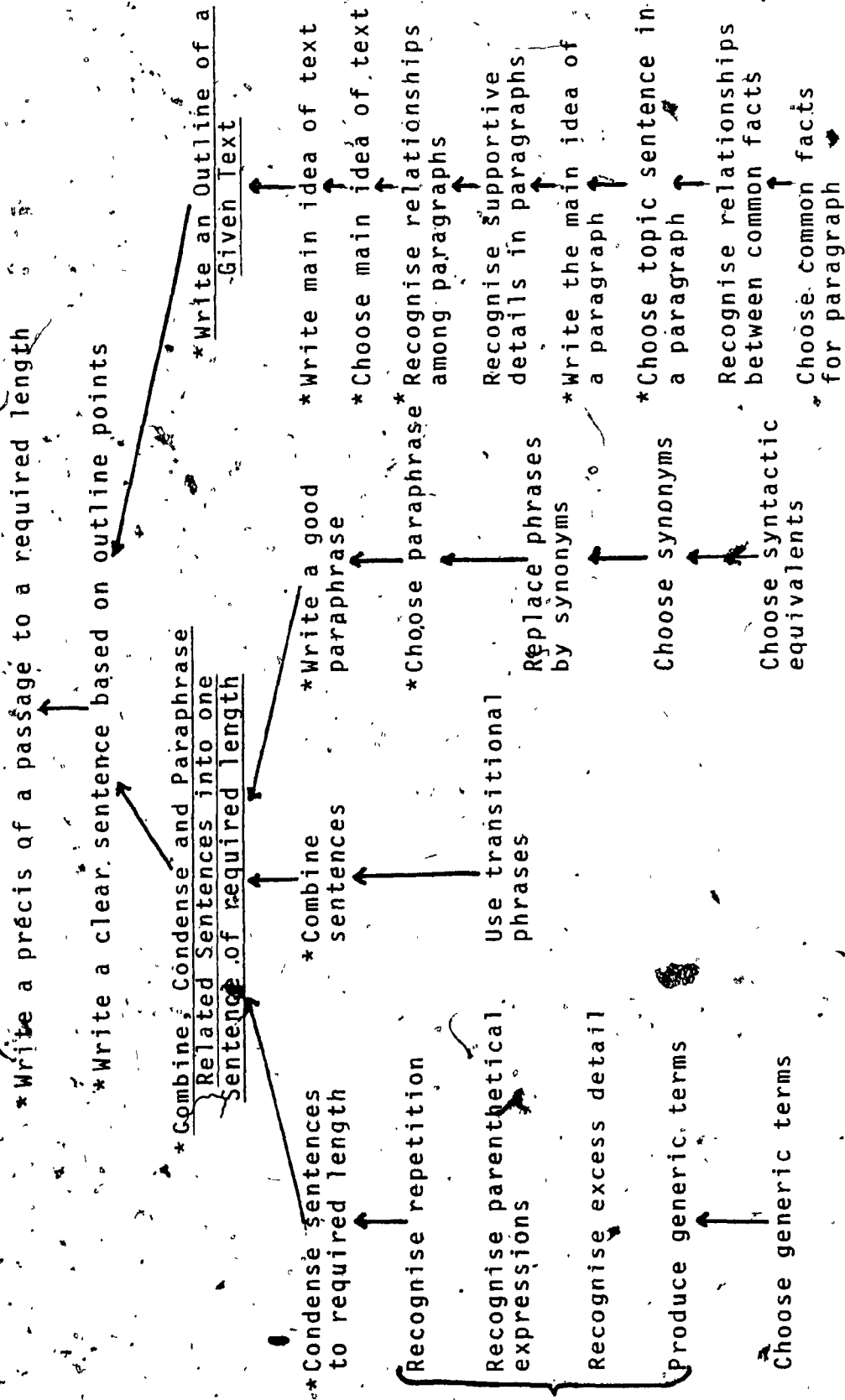
'C' and 'E'.

Clearly, the test in précis-writing skills consists of multiple choice items measuring lower level, recognition skills and longer (modified essay) items, measuring the higher level production skills.

Materials, for both the exploratory and main experiments, were prepared in two modes. First, as a seven-page, printed test and, second, as an audio-tape cassette. Answer booklets for the audio-taped version of the test were, also, provided.

The printed version of the test appears in Appendix I, while the answer booklet appears in Appendix II.

FIGURE 3:- THEORETICAL HIERARCHY OF PRECIS-WRITING SKILLS



*Skills explicitly tested.

RATIONALE FOR THE USE OF THE TEST INSTRUMENT

A précis is a "summary which retains the essential content of a piece of writing while omitting minor details, explanations, repetitions and (in general) unessential features," (Willis, 1975).

Donley (1975) maintains that précis-writing and composition writing are integrally related skills. In addition, many characteristics of a well-written précis appear to be analagous to the characteristics of a well-written composition: coherence of ideas; clear expression of the main ideas, conciseness and precision of language, effective organization of ideas, exclusion of irrevelant information and syntactical accuracy, (Ford, 1960).

Composition writing is usually regarded as being the most representative method through which to measure the student's grasp of the rules of grammar, as well as creativity and originality (in terms of the argument the student posits).

A test of composition writing was not seen as being feasible for the purposes of this study, in addition, the particular test which was used presented the following advantages:-

- 1: The sub-skills of précis-writing were broken down and presented in separate units.
- 2: The test had been empirically validated by its authors (Huntley et al, 1977).
- 3: The test material lent itself well to transformation into the Aural mode.

PROCEDURE

The experimental procedure for both the exploratory and main groups was the same. Within the main experimental group the thirty-one Ss were assigned to the treatment groups in the following quasi-random manner: within the intact group (i.e. the class), the boys were, alternately, assigned to one of the two treatment groups depending on the order of their arrival in the laboratory. The procedure was repeated for the girls.

The group containing fifteen Ss were assigned to Group I i.e. this group of Ss organized their responses from the Aural source prior to their organizing their responses from the Visual sources.

The group of sixteen Ss were assigned to Group II i.e. this group of Ss organised their responses from the Visual source previous to organizing their responses from the Aural source.

Ss organizing their responses form Aural sources were taken into the Language Laboratory where the operation of the tape-recorders and headphones was explained.

Ss organising their responses from visual sources were taken into an adjoining room where they were directed on taking the test.

The experimental materials were distributed to both groups and any questions answered.

The procedures were reversed after an hour of working time had elapsed.

All responses were recorded in an answer booklet, regardless of the mode from which Ss were organizing their responses.

The complete experimental procedure i.e. introductions, explanations, distribution of materials, duration of test as well as time spent discussing the purpose of the procedure amounted to a little less than three hours.

No minimum criterion level was set for either mode of testing, since it was felt to be irrelevant to our purposes, nor were the specific objectives of the test communicated to the students in any of the directions.

Scoring of the tests was effected with the aid of a score key, included in Appendix III.

PREDICTIONS

The inconclusiveness of the results of previous research, with respect to the establishing of the clear superiority of either experimental mode as a learning strategy, allows little basis for forming conclusions, however, because of Ss previous experience with testing from visual sources, as opposed to their relative inexperience with testing from aural sources, it is predicted that Hypotheses 2 and 4 will be borne out i.e. Ss

would, consistently, perform significantly better when organising their responses from visual sources.

CHAPTER IV

RESULTS

INTRODUCTION.

In chapter III the methodology used in the investigation of the hypotheses of this study was presented. Described were: the sample population; experimental design; instrumentation; procedures. This chapter deals with the results of the statistical analysis of the data.

The prime concern is with the results of the main experimental group. Although the results of the preliminary experiment are presented, they are offered here only for comparison with those of the main group, since the total N of Ss was too small to yield data which would allow statistically valid interpretation.

SUBJECTS.THE EXPLORATORY EMPIRICAL TEST

To begin with, an exploratory experiment, to test the hypotheses, was carried out within the English Department (Sir George Williams Campus) of Concordia University. The

test, a test in précis-writing skills, was administered to two groups of students in its two modes -- Aural (audio-tape, cassette) and Visual (printed page).

The two groups of students were two intact classes enrolled in English 211 classes. One class contained thirteen (13) students, the other originally contained eleven (11), two of whom were lost through experimental mortality.

The sequence of presentation of the two modes was manipulated such that one group experienced the Aural mode prior to the Visual mode while the second group experienced the Visual mode prior to experiencing the Aural mode.

In both the exploratory and main experiments the maximum time allowed for either trial was sixty (60) minutes.

Tables I, II, III, and IV record the quantitative results of the exploratory experiment. Table I which compared the separate results of the groups demonstrates a t value for Group II which is of no statistical significance, accordingly Hypothesis I can neither be proved or disproved. Similar results are evident in both Tables II and III, only in Table IV, comparing the aggregate results of all first trials over all second trials, does a statistically significant t value occur, indicating some learning over trials.

Essentially the results present too many contradictions for any valid conclusions to be made. In the light of this fact, then, another experiment was seen as necessary.

TABLE I

WITHIN GROUPS COMPARISON OF PRELIMINARY GROUPS

VARIABLES	GROUP I			GROUP II		
	\bar{X}	S.D.	t	\bar{X}	S.D.	t
AURAL	31.69	6.8	d.f. 24	31.73	6.93	d.f. 18
			t 1.37			t .42
VISUAL	27.69	8.09	p .1	30.44	6.58	p .1

Statistics presented to two decimal places.
 *t not statistically significant for Group II.

TABLE II

BETWEEN GROUPS COMPARISON - PRELIMINARY GROUPS

VARIABLES	AURAL			VISUAL		
	\bar{X}	S.D.	t	\bar{X}	S.D.	t
GROUP I	31.69	6.8	d.f. 20	27.7	1.3	d.f. 22
			t .42			t 1.3
GROUP II	30.44	6.58	p .1	31.73	6.3	p .1

Statistics presented to two decimal places.

*t not statistically significant for Group I in the Aural Mode.

TABLE III

TOTAL SCORES: PRELIMINARY GROUPS

VARIABLES	\bar{X}	S.D.	t	d.f.	p
Total scores on the Aural mode.	31.18	6.58		44	
Total scores on the Visual mode.	59.22	7.7			.1
			t	.23	

Statistics. presentes to two decimal places

*t not statistically significant.

TABLE IV

FIRST TRIALS/SECOND TRIALS: PRELIMINARY GROUP

VARIABLES	\bar{X}	S.D.	t
First Trials	31.71	6.71	d.f. 44
Second Trials	28.82	7.47	t = 2.89 p = .005

Statistics presented to two decimal places

*t statistically significant at p .005.

QUANTATIVE RESULTS

THE MAIN EXPERIMENT

Scores on the dependent variables were collected and analysed using a correlated samples t-test. A one-tailed test of hypothesis I ($\alpha = 0.05$) was applied. Results significant at less than the 0.05 level are specifically reported. (see: Tuckman, 1972).

Table V presents the means (\bar{X}), standard deviations, and t values for the Aural and Visual scores of the two groups of students. In this statistical analysis of Hypothesis I, the variables compared are Listening Comprehension (scores on the Aural mode) and Reading Comprehension (scores on the Visual mode). Within group I of the main experimental group, there is a significant difference between the sizes of the group means, although the difference in the standard deviations is almost negligible (.22).

The computed F ($\alpha = .05$) is larger than the table F (2.05), thereby showing that the variances are not homogenous. The t value of 5.6 exceeds the table value at $\alpha = .0005$, thus rejecting the hypothesis.*

Within group II of the main experimental group, there is, also a significant difference between the group means, and a marked difference in the sizes of the standard deviation (2.45).

* See chapter III p. 34.

The computed F of 2.96 exceeds the table F of 2.45, $\alpha = .025$, showing heterogeneity of the variances. The t value of 3.53 exceeds the table value of 2.75, $\alpha = .005$, thereby indicating that Ss did not perform equally well on the two modes.

TABLE V

WITHIN GROUPS COMPARISON OF THE MAIN EXPERIMENT

VARIABLES	GROUP I		t	\bar{X}	GROUP II		t
	\bar{X}	S.D.			S.D.	d.f.	
AURAL	12.87	5.29	28	18.94	8.54	30	
			t 5.6				t 3.53
VISUAL	23.93	5.51	p .0005	28.19	6.09	p .005	

Statistics presented to two decimal places

*Group I -- t statistically significant at $\alpha = .0005$.

*Group II -- t statistically significant at $\alpha = .005$.

Table VI presents data exhibiting the between-groups relationships of the dependent variables -- scores on the Aural mode and scores on the Visual mode. A significant difference between means and standard deviations of the groups is evident. On the dependent variable, Aural mode, the computed F (3.6) exceeds the table F (2.96), $OC = .025$, attesting to the heterogeneity of the variances.

Using a one-tailed t , the t value was calculated. At .42 this t value is not statistically significant at the .1 level.

Similarly on the dependent variable, Visual mode, there is an evident difference between the means and standard deviations of the groups.

The computed F (2.22) exceeds the table F (2.02), at the .1 level, again attesting to some heterogeneity of the variances. However, t (.34) is not statistically significant at the .1 level.

Thus although there is an evident difference between the means and standard deviations of the groups, this difference is not reflected in the computed values of t , thus failing to support any statistically significant difference between S_s performance on the dependent variables (between groups).

Table VII records the relationship between S_s performance (global) on the dependent variables. The difference between the means and standard deviations of the dependent variables is evident, greater in the case of the means - (16 -- 26.13)

but lesser in the case of the standard deviation -- (7.68 - 6.11). The computed $F = 2.6$ (using F-Maximum Test for Homogeneity of Variances -- Bruning and Klintz (1968), exceeds the Table $F (2.07)$, $\alpha = .05$, attesting to the heterogeneity of the variances. The calculated $t (5.74)$ exceeds the table value (3.46) $\alpha = .0005$. Thus Hypothesis I of superiority of the Visual mode can be accepted.

HYPOTHESIS II

Table VIII presents data investigating the improvement in learning due to testing experience. Neither the difference between the means nor the difference between the standard deviations are, numerically, large. The computed $F (2.6)$ exceeds the table value of $F (2.07)$ $\alpha = .05$, showing that the variances do, indeed, differ statistically. However, the calculated $t (0.26)$, is not statistically significant at the .1 level.

Hypothesis II can therefore be rejected.

TABLE VI
BETWEEN GROUPS COMPARISON - MAIN EXPERIMENTAL GROUPS

VARIABLES	AURAL		VISUAL		t	d.f.	p
	\bar{X}	S.D.	\bar{X}	S.D.			
GROUP I	12.87	5.29	23.93	5.51		29	
GROUP II	18.94	8.54			.42		.34
			28.19	6.09			.1

Statistics presented to two decimal places.
 *t not statistically significant on either of the dependent variables.

TABLE VII

TOTAL SCORES: MAIN EXPERIMENTAL GROUPS

VARIABLES	\bar{X}	S.D.	t
Total scores on the Aural mode.	16	7.68	d.f. 60
Total scores on the Visual mode.	26.13	6.11	t 5.74 p .0005

Statistics presented to two decimal places.
 *Statistically significant t, even at $\alpha = .0005$.

TABLE VIII

FIRST TRIALS/SECOND TRIALS: MAIN EXPERIMENTAL GROUP

VARIABLES	\bar{X}	S.D.	t	d.f.
First Trials	20.77	9.6		60
Second Trials	21.35	7.55	.1	
			t .26	

Statistics presented to two decimal places
 *t not statistically significant.

RELIABILITY OF TEST ITEMS

Test reliability is vital to any research which involves the use of a test protocol. Reliability being "the degree of consistency between two measures of the same thing." see: Mehrens and Lehmann (1973). The test items were originally tested for reliability by test developers Huntley et al (1977); see Siliauskas (1977). Due to the fact that item 'F' of the original version was omitted for this revised version, (see Appendix IV), a new test of internal consistency of the items was necessary.

The reliability of the test items was calculated as follows:
 $K-R_{20} = 0.87$ (on Aural mode of the test); $K-R_{20} = 0.76$ (on Visual mode of the test).

The internal consistency of the test overall modes was:
 $K-R_{20} = .91$.

These are acceptable levels, showing that the items did indeed measure what they were supposed to measure.

OBSERVATIONAL RESULTS

During the testing situation the researcher was able to make the following observations concerning the subjects:-

- 1: Ss did not hesitate to request the replaying of the longer passages 'F' and 'H'.
- 2: Ss were amused by the content of item 'G', when this item was presented in the aural mode (Ss burst out laughing).
- 3: Ss specifically requested that item 'G' be replayed because they liked the content.

CHAPTER V

DISCUSSION

INTRODUCTION

Chapter IV described and tabled the results of the statistical analysis of the data collected in this study. The data points to a rejection of the null hypothesis - that Ss would perform equally well on both modes of the test - and the acceptance of Hypotheses 2, 4, 5* pointing to a high negative correlation between précis skills derived from reading and précis skills derived from listening.

This chapter will be concerned with these results and their implications for both the Ss in the study and for a generalised population.

SUMMARY OF THE RESULTS CONCLUSIONS

The results of the study may be summarised as follows:-

- 1: The Aural and Visual presentation modes led to statistically significant differences in Ss scores with scores derived from the Visual mode being consistently higher.
- 2: Ss scores did not improve significantly over two successive trials.

* See Chapter III: METHODOLOGY

- 3: The two groups did not have equal skill capabilities since Ss in Group II of both phases of the main experiment performed consistently better on both modes of the test.
- 4: Internal consistency of the test items (calculated on the total scores of both modes) was high yielding $K-R_{20}$ values of 0.87 (Aural) and 0.76 (Visual).
 $K-R_{20}$ on total scores = -1.0.
- 5: On the test of internal consistency of the items, the scores for item F were markedly higher on the Aural mode. (See OBSERVATIONAL RESULTS, Chapter IV).

DISCUSSION OF RESULTS

The finding of a statistically significant difference between the scores derived from the two presentation modes with the superiority of the visual mode seems to bear out the findings of Corey (1934) and Beighley (1952), which found reading to be superior to listening, as a learning mode.

Any interpretation of the data in this study should, it seems to this researcher, be made cognizant of the conclusions of Young (1973), that is, that while younger subjects appear to learn better through listening than through reading, older subjects yield more complex and contradictory data.

The results of this study show a clear superiority of the visual mode over the aural mode for this group of Ss. Several

factors may have influenced these results, the most important being students familiarity with testing in the visual mode, and their relative unfamiliarity with testing in the aural mode.

It is important to point out that S_s scores did not improve significantly over trials pointing to a non-transference of skills from either the Aural to the Visual mode or vice-versa, from the Visual to the Aural mode.

This finding may have serious implication vis-à-vis the presentation of classroom instruction, and the use of the Aural mode (listening) within the classroom situation (Petrie, 1961), and may indicate that, as far as the S_s of the main experiment are concerned, the Aural mode (in the form of lectures) may not be as efficient a learning tool as the Visual mode, unless the material stimulates the students' interest, as did item G on the Aural mode. A case might be argued for the diversifying of instructional modes as well as more systematic instruction and practice in the effective use of the Aural mode.

LIMITATIONS OF THE STUDY

One principal limitation of the study was physical. The size of the main experimental population, though yielding statistically significant results, limits possible generalization of the results to a larger population.

Another limitation was the availability of individual cassette recorders. Although these were, in fact, available - the researcher had provided these - the facilities did not allow their use and students were forced to listen at the same rate. While this situation effectively simulated the classroom environment, that is, written material is available to the students for a longer period of time, the internal validity of the experiment is weakened by the Ss inability to control the rate of the flow of information as effectively as was possible with the visual mode.

It must be pointed out that more Ss completed the test using the Aural mode than the Visual mode.

The duration of the test, with Ss organising responses from both modes of the test in one two-hour sitting, was less than desirable. The constraint here was the unavailability of the laboratory facilities coupled with the logistical difficulties of transporting students to and from the laboratory. This may have resulted in some maturation of individual students, although the statistical test-Table VII does not show this.

It must be pointed out that, although the quasi-random assignment of the students led to one group with higher ability than the other, this does not affect the main result of the experiment. This is due to the split/alteration design which was used.

RECOMMENDATIONS FOR FUTURE RESEARCH

Any further studies, concerned with this area, might be well advised to take heed of the following considerations:-

- 1: A series of studies with younger children of differing age groups might be effected. This might serve to identify the point at which the superiority of the aural mode as a method of learning begins to decline and may, therefore, provide a more solid theoretical platform for comparison of the modes with respect to older students.
- 2: An attitudinal survey, with respect to the Ss perception of the value and timeliness of the material, and therefore a survey of Ss motivation to perform, might be included as it should add another dimension to the research.
- 3: A survey of Ss perception of how well the test measured or failed to measure their ability to respond accurately, might prove helpful in establishing further conclusions about the instructional efficiency of the two modes.
- 4: A delayed-recall mini-test of students' retention, might be helpful in measuring the efficiency of either mode as a learning medium.

- 5: Other research studies might wish to divide subjects into discrete groups undergoing different treatments and testing the efficiency of both treatment in an immediate, as well as, a delayed recall test.

SUMMARY

This study was concerned with the relative efficiency of the aural and visual modes as methods of instruction and testing.

The results of this study indicate a clear superiority of the visual mode as a testing method.

The acceptance of Hypothesis 4, raises serious considerations with respect to the more traditional, lecture-oriented classroom, since it seems to indicate that, as a learning method, the aural mode is less efficient than the visual mode. A conclusion which is supported by Petrie (1961). It may well be that the aural mode is a superior instructional method for some subjects and an inferior mode for others; or even as Young (1973) suggests, the optimum mode of instruction might be learner specific - that is, dependent on the cognitive styles and aptitudes of the learner.

The implications for these subjects (and students in a similar position) is that more systematic instruction in selecting the important points of a lecture or discourse is

necessary. This might be strategically advantageous for the university-bound student.

The rejection of Hypothesis 3, which posits superiority of the aural mode, should not be dismissed lightly. It should be borne in mind that students consistently performed better on item F on the aural mode, than on the visual mode. This may well be due to their being amused by the item but it serves to highlight the importance of learner motivation to performance. Perhaps the difference in scores on the aural mode may (at least) in part be due more to a lack of interest in the items than to a physical inability to construct response.

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Xerox Listening programme. copyright, Xerox Ltd., 1956.

APPENDIX I

TEST IN PRECIS-WRITING SKILLS
(PRINTED MODE)

TEST IN PRECIS-WRITING SKILLS

DIRECTIONS:- Please, LISTEN to the following directions carefully.
Do NOT turn the page until you are told to begin.
Now, write your name and your instructor's name on the
paper provided.

The following test is not for a grade; please do your best work nonetheless.

You will need only a pencil or a pen to work on this test.

This test has eight (8) parts numbered A to H. You have sixty (60) minutes to complete this test.

Some of the items ask you to circle the letter of the best answer, and some ask you to WRITE phrases, sentences or groups of sentences. Please FOLLOW the directions as best you can and try to write clearly.

Your instructor should now answer any questions you may have with respect to the test. Your instructor is allowed to read a word to you if it is unclear, but is not allowed to interpret the meaning of the items or to give you help in arriving at solutions to the items.

When you begin the test please check to see that you have eight (8) pages on which to record your answers.

You may begin now. Good luck!

- A. In each item, one sentence comes closest to the meaning of the sentence you will hear. Write the letter of the sentence which comes closest to the first sentence.

1: The Masked Marvel was defeated by Fat Man at the Paul Sauvé Arena.

- (a) The Masked Man defeated Fat Man at the Paul Sauvé Arena.
- (b) At the Paul Sauvé Arena, Fat Man defeated the Masked Marvel.
- (c) It was at the Paul Sauvé Arena that Fat Man lost to the Masked Marvel.
- (d) The Paul Sauvé Arena was where Fat Man was defeated.

2: The children, singing a mysterious tune, followed the piper on the road out of town.

- (a) The piper, singing a strange song, was led by the children out of town.
- (b) The pipe-player followed the children, singing a mysterious song on the road leaving town.
- (c) The piper led the boys and girls, who were singing a mysterious melody on the road out of town.
- (d) The boys and girls led the piper, singing a strange tune, on the street leaving the town.

- B. In the following items, rewrite the sentences you will hear so as to form a single sentence. Do NOT leave out any information. Do NOT use the conjunctions "and", "or", "but".

1: Raisins should be a food in everyone's diet. They are high in protein and vitamins.

2: The swimmer was crossing the lake. She saw a bird. It was carrying a fish.

- C. Rewrite the following sentence so that it contains between ten (10) and twenty (20) words. The important information must be included but you may omit or replace words and phrases.

Significantly large numbers of men, women and children from all our provinces -- north, south, east and west -- are, in the truest sense of the word, ignorant and uninformed about the basic origins of their ancestry, and so lack emotional feelings of pride in their country or their homeland.

- D. For the next two (2) items, you will be given a Main Idea and three (3) supporting ideas. You will use these ideas to construct a clear sentence. Be sure to use all the ideas given, and be sure to maintain the relationship between the Main Idea and its supporting ideas.

1: Main Idea: Bee-keeping.

Details : - provides honey and wax.
 - requires special equipment and patience.
 - service to fruit growers.

2: Main Idea: Faucets in the bathroom of Louis XIV.

Details : - were gold-plated.
 - perfume came out.
 - no water for bathing.

- B. Rewrite the following sentences into a single sentence of no more than twenty (20) words. Remember, leave in all important information:

It was a spring day that made you want to take your coat off. Unfortunately, the harried, over-worked student of English had to toil and strain over her texts, books and reference materials to outline and select the key ideas for her research study. It dealt with the recreational use of parks in the springtime.

- F. The following passage consists of three paragraphs. You must listen to these paragraphs and in a short sentence or phrase, write the main idea of the entire passage.

The science of high-frequency sound, called 'ultrasonics', is one of the newest and most exciting techniques of the space age. 'Ultra' means "beyond the range of hearing", 'sonics' means "sound". Produced by converting electrical pulsations into mechanical ones, these sounds have such high frequency that humans cannot hear them. Ultrasonics is the process that enables the Navy to detect submarines, and fishermen to detect schools of fish. Many uses have been found for ultrasonics.

Penetrating flesh and bone harmlessly, ultrasonic waves are a subject of research that has contributed to medical science in several ways. At Chicago State Mental Hospital the ultrasonic process enables physicians and psychiatrists to make quick diagnoses. In contrast to the ten-minutes that the X-ray process demands, the ultrasonic process sends out echo patterns that can be read within ten seconds. Unlike X-rays, the ultrasonic process is not dangerous, and therefore it can be administered to a patient repeatedly. Doctors use ultrasonic devices to detect fetal heart-beats, to sterilize instruments, to clean teeth, and to detect blood clots.

Similarly, ultrasonics contributes significantly to industrial technology. Cleaning processes, vegetable and fruit cultivation, milk homogenization, mechanical dishwashers, burglar-alarm systems, riveting machines and air purifiers have all been revolutionized by this new science. There are now approximately fifty American companies in the ultrasonics field. One authority estimates that ultrasonics is a \$50-million business annually and that by 1973 the annual gross from ultrasonics will be \$160 million.

Within a very short time ultrasonics will be as essential to human life as the telephone is today.

F. (Part 2). You will be asked to write in phrase form an outline of the passage you just heard. Each paragraph will be read to you once; please use the outline provided.

Paragraph 1: Main Idea -----
Supportive details -----
Supportive details ----- (etc.)

Paragraph 2: Main Idea -----
Supportive details -----
Supportive details -----

Paragraph 3: Main Idea -----
Supportive details -----
Supportive details -----

- G. You will be asked to answer questions concerning the following passage. Please listen carefully. Do not turn the page of your answer booklet until you are told to do so.

There is a totalitarian conspiracy abroad in the land to deprive parents of a natural and fundamental right. This is the parental right to prattle baby talk to their infants. The conspirators are an influential Fascistic group of short-haired old maids and long-haired bachelors who have propagandized upon the credulity of parents by posing as authoritative child experts. The slogan of these conspirators is never, never speak to the baby except in the language used by the best speakers and writers. To be sure a certain amount of leeway is permitted. You do not have to use a Harvard accent, but your pronunciation should be pure, your choice of words impeccable, the syntax perfect, and the diction immaculate.

For years I was just such an inhibited parent, intimidated by the possible tragic waves of the sin of prattling. Just what the consequences would be was never clear to me, but I had a vague uneasy sense that they would be visited until the third and possibly fourth generation. Recently having done some research on the development of speech sounds of infants I have been led to an emancipation from the anti-social inhibitions imposed by the above-mentioned child-starved dictators. At any rate it is time to announce a new declaration of independence in regard to the freedom of baby talk. In place of the expert's slogan, parents should raise a new one - give me liberty to prattle or give me death. For in this world of dictators and experts one of the few joys left to fathers and mothers is the joy of babbling. Incidentally, my diagnosis of the mental limitations of Hitler, Stalin and Mussolini is that their parents did not prattle soft sounds and sweet nothings to them in their infancy.

To be specific about this important matter, if you are quietly humming "Rock-a-bye Baby", to your three-month old child and suddenly are seized by an overwhelming desire to say "goo-goo" to him, the proper thing is to say it. If he says, "a di, di, di, di?" to you with a questioning rise in the last sound, don't stand before him helpless like a blocked stutterer, but answer in kind. Adding a few frills like the sound of a pained turtle-dove or a turkey-gobbler won't hurt either. But for Heaven's sake don't look around furtively before indulging in this forbidden wisdom, don't consult the latest book on child psychology for the best enunciation or the most exquisite diction. Go ahead, be yourself, forget the inhibitions, and coo boldly. It will educate the baby and you will get a lot of fun out of it.

Questions to G

1: Circle the letter beside the sentence that best expresses the main idea of this entire selection.

- (a) The desire to prattle is considered abnormal by child experts.
- (b) One of the few joys left to babies is prattling.
- (c) Prattling is a parent's natural right and is not harmful to babies.
- (d) Parents should use proper English in addressing their children.
- (e) Children who hear no baby-talk have difficulties in developing language skills.

2: Write the Main idea expressed in the first paragraph.

3: Circle the letter that best completes the sentence which you will now hear.

The main idea of the second paragraph is best expressed as:

- (a) The experts' opinions on prattling.
- (b) The freedom of the baby to prattle.
- (c) The detrimental effects of baby-talk.
- (d) The author's insistence that parents use baby-talk.
- (e) The author's insistence that prattling may not aid in teaching infants to speak.

4: The function of the last paragraph is:

- (a) To prove the points expressed in the two preceding paragraphs.
- (b) To restate the main idea expressed in Paragraph #1.
- (c) To provide a contrasting point of view to that in Paragraph #2.
- (d) To provide examples of the point made in Paragraph #2.
- (e) To illustrate the chronological development of the passage.

- H. From the following passage you will be expected to write a précis of one paragraph. This paragraph must contain no fewer than 30 words and no more than 40 words. Please listen carefully. You may make jottings if you wish.

Human beings communicate in many ways. One of these ways is the gesture. Men communicate approval by winking an eye, by clapping their hands, by whistling, by smiling or by laughing. They communicate disapproval by pointing a thumb toward the ground, by putting the tongue out of the mouth and blowing, by holding the nose with the fingers, or by grimacing. They indicate direction by pointing, and they often communicate size by holding their hands a certain distance apart. There are many other gestures. Some communicate ideas, some communicate attitudes or feelings.

Lower forms of life also use methods of communication. Bees, like human beings, live in orderly communities. They communicate the location of food by carrying odour samples back to the hive. They communicate the distance and direction of the food by dancing. They dance in circles to communicate short distances, and they wiggle their bellies and dart back and forth to indicate a longer distance. The speed of their dance also varies with the distance. Bees run up the comb (hive) to communicate the direction of the food from the sun i.e. the food is toward the sun. They run down the comb to communicate the direction away from the sun. At noon no communication takes place. These bee dances are important to the bee colonies. They identify sources of food.

Of course, the major difference between the communication systems of man and other animals is the 'word'. Only man alone can communicate complex ideas. Only man can share his knowledge with his fellows and with his sons and daughters.

Please write your précis now.

7.

APPENDIX II

BOOKLET FOR AURAL MODE RESPONSES

TEST IN PRECIS-WRITING SKILLS

NAME: _____

COURSE: _____

ITEM A: No. 1

- (a) The Masked Man defeated Fat Man at the Paul Sauvé Arena.
- (b) At the Paul Sauvé Arena, Fat Man defeated the Masked Marvel.
- (c) It was at the Paul Sauvé Arena that Fat Man lost to the Masked Marvel.
- (d) The Paul Sauvé Arena was where Fat Man was defeated.

ITEM A: No. 2

- (a) The piper, singing a strange tune, was led by the children out of town.
- (b) The pipe-player followed the children, singing a mysterious song on the road leaving town.
- (c) The piper led the boys and girls, who were singing a mysterious melody on the road out of town.
- (d) The boys and girls led the piper, singing a strange tune, on the street leaving town.

ITEM BSENTENCE 1: _____

_____SENTENCE 2: _____

ITEM C

PLEASE WRITE YOUR SENTENCE HERE:

ITEM D

SENTENCE 1: _____

SENTENCE 2: _____

ITEM E

WRITE YOUR SENTENCE HERE:

ITEM F

WRITE THE MAIN IDEA OF PARAGRAPH F:

STATEMENT F: PART TWO

PARAGRAPH 1: Main Idea _____

Supporting Details _____

Supporting Details _____

Supporting Details _____

STATEMENT F: PART TWO

PARAGRAPH 2: Main Idea _____

Supporting Details _____

Supporting Details _____

Supporting Details _____

STATEMENT F: PART TWO

PARAGRAPH 3: Main Idea _____

Supporting Details _____

Supporting Details _____

Supporting Details _____

ITEM G: No. 11: CIRCLE THE LETTER BESIDE THE SENTENCE THAT BEST EXPRESSES THE MAIN IDEA OF THIS ENTIRE SELECTION.

- (a) The desire to prattle is considered abnormal by child experts.
- (b) One of the few joys left to babies is prattling.
- (c) Prattling is a parent's natural right and is not harmful to babies.
- (d) Parents should use proper English in addressing their children.
- (e) Children who hear no baby-talk have difficulties in developing language skills.

ITEM G: No. 2

WRITE THE MAIN IDEA EXPRESSED IN THE FIRST PARAGRAPH:

ITEM G: No. 3

3: CIRCLE THE LETTER THAT BEST COMPLETES THE SENTENCE WHICH YOU WILL NOW HEAR.

The main idea of the second paragraph is best expressed as:

- (a) The experts' opinions on prattling.
- (b) The freedom of the baby to prattle.
- (c) The detrimental effects of baby-talk.
- (d) The author's insistence that parents use baby-talk.
- (e) The author's insistence that prattling may not aid in teaching infants to speak.

ITEM G: No. 4

THE FUNCTION OF THE LAST PARAGRAPH IS:

- (a) - To prove the points expressed in the two preceding paragraphs.
- (b) To restate the main idea expressed on Paragraph #1.
- (c) To provide a contrasting point of view to that in Paragraph #2.
- (d) To provide examples of the point made in Paragraph #2.
- (e) To illustrate the chronological development of the passage.

ITEM H.

WRITE YOUR PRECIS OF PARAGRAPH H:

APPENDIX III

CRITERIA AND MODEL ANSWERS FOR POST-TEST
IN PRECIS-WRITING SKILLS

CRITERIA AND MODEL ANSWERS FOR POST-TEST IN PRECIS-WRITING

Item A. #1, #2: Choose the best paraphrase. (Skill #14)

The student must select the paraphrase which best approximates the meaning of a given sentence. Both items must be answered correctly.

- Answers: #1. b. - At the Paul Sauvé Arena, Fat Man defeated the Masked Marvel.
- #2. c. - The piper led the boys and girls, who were singing a mysterious melody, on the road out of town.

Item B. #1, #2: Combine sentences. (Skill #7)

The student must combine short sentences into one grammatically correct sentence, without omitting or adding any information. Both #1 and #2 must be combined correctly.

Examples of acceptable answers:

- #1 - Raisins, which are high in protein and vitamins, should be a food in everyone's diet.
- Raisins, high in protein and vitamins, should be a food in everyone's diet.
- Raisins, which should be a food in everyone's diet, are high in protein and vitamins.
- #2 - While crossing the lake, the swimmer saw a bird carrying a fish.
- The swimmer saw a bird carrying a fish while she was crossing the lake.

Item C: Condense a given sentence to required length. (Skill #5).

The student must condense a given sentence (containing parenthetical expressions, repetitious words and phrases, excess detail and words for which a generic term can be substituted) to a required length. The sentence must be rewritten clearly and concisely, showing proper and grammatically correct usage of the English Language.

Model Answer: Significant numbers of people from all our provinces are ignorant about their ancestry, and so lack pride in their country.

The student must:

- a. Use from 10 to 20 words inclusive.
- b. Obtain at least 10 of the following 12 points.
 - 1: Replace "men, women and children" with "people" or a similar generic term.
 - 2: Remove parenthetical expression - "north, south, east and west."
 - 3: Remove parenthetical expression - "in the truest sense of the word".
 - 4: Eliminate either "ignorant" or "uninformed".
 - 5: Eliminate either "basic origins" or "of their ancestry".
 - 6: Eliminate either "emotional feelings of" or "pride in".
 - 7: Eliminate either "their country" or "their homeland".
 - 8: Eliminate either "significant" or "large".
 - 9: Include "from all our provinces" or a similar term.
 - 10: Include "and so" or a similar connector such as "therefore".
 - 11: Include "numbers of".
 - 12: Include "lack".

Item D: Write a clear sentence based on outline points. (Skill #2)

The student must write a clear sentence in coherent English, which includes all of the points listed, showing subordination of details to the main idea.

#1. Examples of acceptable answers:

- Bee-keeping, a service to fruit-growers that provides honey and wax, requires special equipment and patience:
- Bee-keeping, which requires special equipment and patience, is a service to fruit-growers while providing honey and wax.
- Bee-keeping, which is a service to fruit-growers, while also providing honey and wax, requires special equipment and patience.

#2. Examples of acceptable answers:

- The gold-plated faucets in the bathroom of Louis XIV flowed with perfume, but had no water for bathing.
- Out of the gold-plated faucets in the bathroom of Louis XIV flowed perfume but there was no water for bathing.

Item E: Combine, condense, and paraphrase related sentences into one sentence having a required length, (Skill #4)

The student must combine two or more sentences (containing parenthetical expressions, repetitious words and phrases, excess detail, words for which a generic term can be substituted, and words for which synonyms can be used) into one sentence having a required length. The sentence must be grammatically correct and written in good English.

Model answer: On a warm spring day, the harried English student toiled over her books to research the springtime use of parks.

The student must:

- a. Use 20 words or less.
- b. Obtain 7 out of 8 possible points using the following criteria:
 - 1: Paraphrase "a spring day that made you want to take your coat off" with "a warm spring day" or similar terms.
 - 2: Eliminate either "harried" or "overworked".
 - 3: Eliminate either "toil" or "strain".
 - 4: Use a generic term for "texts, books and research materials" such as "books".
 - 5: Replace "select the key ideas for her research study" with either "outline" or "research" or similar terms.
 - 6: Condense "use of parks in the spring time" to "springtime use of parks".
 - 7: Condense "student of English" to "English student".
 - 8: Remove "unfortunately".

Item F #1: Write the main idea of a text. (Skill #9)

The student must write a phrase or sentence which correctly expresses the main idea of the text.

Model answer: Use of ultrasonics.

Item F #2: Write a point outline of a given text. (Skill #3)

The student must write a point outline of the text, clearly differentiating the main ideas from the supporting details.

Model outline:

- A. Ultrasonics - introduction
 - 1: its meaning
 - 2: how it is produced
 - 3: varied uses
- B. Uses in medical sciences
 - 1: quick diagnoses
 - 2: safe, quicker than X-rays.
 - 3: can detect fetal heartbeats, sterilize instruments, clean teeth, detect blood clots.
- C. Uses in industrial technology
 - 1: cleaning processes, vegetable and fruit cultivation.
 - 2: approximately 50 American companies in the field.
 - 3: annual gross \$160 million in 1973
- D. Ultrasonics - conclusion
 - 1: as essential to human life as the telephone

The student must:

- 1: list each of the four main ideas.
- 2: list at least two uses for points 'B' and 'C'.
- 3: have at least two of three significant details per main idea.
- 4: outline must be organised according to paragraphs.

Item G #1: Choose the main idea of a text. (Skill #15)

The student selects the phrase which best expresses the main idea of the text.

Answer: C - Prattling is a parent's natural right and is not harmful to babies.

Item G #2: Write the main idea of a paragraph. (Skill #18)

The student must write a phrase or a sentence which correctly expresses the main idea of a given paragraph.

Answer: 'Experts' are depriving parents of the right to prattle.

Item G #3: Choose the main idea of a text. (Skill #22)

Answer: D - The author's insistence that parents use baby talk.

Item G #4: Recognize the function of a paragraph. (Skill #17)

Answer: D - to provide examples of the point made in paragraph 2.

Item H: Write a précis of a passage a third to a quarter of the original's length.

The student must write the précis in coherent English, including the main ideas and significant supporting details and respecting the sequence of the ideas in the original.

Model précis: Human beings may communicate ideas and attitudes using gestures. Lower forms of life also have methods of communication such as the bees' dance to indicate the location of food. Only human beings use words to communicate complex ideas.

Criteria: 1. Must use 30 to 40 words.
2. Must mention 5 of the following 6 points.

- 1: human use of gestures
- 2: gestures for communicating ideas and attitudes
- 3: lower forms of life have methods of communication
- 4: bees' dance for location of food
- 5: human use of words
- 6: words for communicating complex ideas

APPENDIX IV

ITEM OMITTED FROM ORIGINAL TEST

The original item 'F' of the test in précis-writing skills

F: Below you will find a sentence (No. 1) and the beginning of another sentence (No. 2) with blanks in it. These two sentences should mean the same. Fill in the blanks using different words for each of the underlined phrases. Your changes should have about the same number of words as the original. One change - blank 2 - is already done for you. Fill in the other three blanks using the numbers as a guide.

Sentence No. 1: "Telling tall tales" is a phase which the 1: majority
of girls and boys 2: pass through and thus
3: should not be looked upon as a 4: grave concern.

Sentence No. 2: A phase of "telling tall tales" 2: is experienced
 by 1: _____ but 3: _____
_____ as a 4: _____.

Criteria and model answer for the original item 'F'.

Item F: Write a good paraphrase. (Skill #8)

The student must paraphrase the underlined segments of the model sentence and place them in the sequence indicated. The resulting paraphrase must be syntactically and grammatically correct. Two of the three blanks must be filled in correctly.

Answer: 1. Most children 2. undergo a phase of "telling tall
tales" which 3. ought not to be considered as a
4. serious problem.

Other synonymous expressions may be accepted at the grader's discretion.