Comprehension of Writing and Spontaneous Speech

Laurence Walker

The purpose of this study was to explore a difference between reading comprehension and the comprehension of spontaneous speech which an earlier investigation by the present author had suggested. It was hypothesized that, because of channel differences and because of differences in the linguistic structure of formal writing and extemporaneous speech, reading comprehension was a more precise form of language processing than listening to this type of material. Data to test this hypothesis were obtained by administering a test of precision in literal comprehension to a sample of undergraduate students who had been exposed either to passages of spontaneous speech or equivalent written passages. Statistical analysis of the data revealed a significant difference between the mean scores of the listening group and the mean score of both an untimed reading group and a reading group whose reading time had been matched to the time available to the listeners. It was concluded that normal reading comprehension, at least at the literal level in mature readers, was shown to be a more precise form of language processing than listening to spontaneous speech.

The issue of concern in this study is the status of reading comprehension as a unique process, separable from other forms of verbal understanding such as listening comprehension. Moffett (1968) asserted that there is no such thing as reading comprehension, that the understanding of written material is a function of a larger process, comprehension in general. More recently a developmental model of auding (listening) and reading (Sticht, Beck, Hauke, Kleiman, & James, 1974) has emphasized the similarity between reading and listening as receptive communication processes based upon common language and conceptualizing functions.

While most reading specialists would find Moffet's implied restriction of their expertise hard to accept, there is really little empirical evidence to support any logical or conventional belief in the uniqueness of the processes of comprehending written language. One might say that the question itself merely invites an academic

Visible Language, XI 1 (Winter 1977), pp. 37-51.

Author's address: Dept. of Educ., Mount Saint Vincent Univ., Halifax, Nova Scotia, Canada.

exercise to find the answer to an educationally irrelevant issue since reading comprehension must be unique in view of the fact that reading as an activity is different from any other form of language processing. However, it would seem to be of some theoretical and practical significance to determine whether the processes by which the reader comprehends written material, having successfully decoded it, are the same processes as those used in the comprehension of spoken discourse or whether a different set of comprehension processes is called into play during the act of reading. The ultimate resolution of this issue would help clarify the target of research into reading comprehension and would motivate educational decisions about the place of instruction in reading comprehension skills as part of language arts and reading programs.

Background to the Study and Theoretical Perspective

One research strategy by which answers to the question of reading comprehension's unique status might be sought is through the contrastive study of reading and listening comprehension. As the main channels for the processing of linguistic messages, reading and listening constitute the major members of the larger class: language processing. If it could be shown that differences exist between the two processes—over and above the obvious, overt differences in the physical activities involved—such differences might contribute to a more precise definition of reading comprehension.

A theoretical perspective from which such a comparison could be made is provided by principles from the field of human information processing. Implicit or explicit in models of human information processing (Sperling, 1970; Norman and Rumelhart, 1970; Biggs, 1969) is the principle that the organism does not receive and process all the sensory information that assails it. Even within a single set of sensory input being attended to the total information it contains is not utilized in its processing. This principle can be called "cue sampling." Closely associated with cue sampling is the second principle that information processing is constructive or reconstructive, a matter of recreating, from the partial information received and processed, the whole event concerned (Neisser, 1967). Processing is the result of an interaction

between the received cues and existing cognitive structure (Ausubel, 1963; 1968).

These principles are congruent with theories of speech perception and speech processing (Hallé & Stevens, 1959; Hochberg, 1970; Neisser, 1967; Chomsky & Hallé, 1968) and with conceptual and empirical studies of the reading process (Goodman, 1970; Smith, 1971; Wanat, 1971; Kolers, 1970; J. Mackworth, 1971). While this body of work can be quoted as an indication that the principles of cue sampling and meaning reconstruction apply to both listening and reading, the question can be raised as to whether there is any difference in the way they apply to the two activities.

One source of difference in the operation of the two principles might lie in the channel characteristics of reading and listening. Reading involves a spatial dimension using a static array of visual cues while listening utilizes transient, acoustic cues in a temporal dimension. Whereas the reader is in control of his rate of processing, being able to slow down, stop to reflect or retrace his steps to clear up ambiguities in his cue sampling and meaning reconstructions, the listener's rate of processing, usually at least, is controlled by the speaker since the linguistic units of the spoken message follow one another embedded in the acoustic stream of speech, available only as long as the memory can retain them. As a result of these channel differences, cue sampling and meaning reconstruction in reading might be processes that are more closely constrained by the actual content of the message than are the equivalent processes in listening. In other words, since cues in writing are spatially available for resampling if necessary, whereas cues in speech are temporal and therefore unavailable for resampling, processing ambiguities, inconsistencies and incompatibilities may be more apparent to readers than to listeners. In a listening situation one may be more likely to hear what one wants to hear or expects to hear than in a reading situtation. If this hypothesis is true, one might predict that cue sampling and meaning reconstruction in reading are more precise processes than in listening, bearing greater fidelity to the message than is the case in the latter.

This hypothesized difference may be augmented when one kind

of listening out of the many alternatives is considered, that which involves the reception of spontaneous, or extemporaneous speech. Most comparative studies of reading and listening have employed listening material that is written prose to be read aloud, a preoccupation which has been criticized by Wilkinson (1970a, 1970b). Spontaneous speech, which forms a significant proportion of one's language environment, refers to spoken language which is not oral reading or memorized text, but which is produced extemporaneously in monologue or dialogue situations. Such speech is often marked by mazes, fragments, and abandoned constructions (Loban, 1967). As a result, sentences are not always grammatical and ideas may not be presented in an orderly, cohesive manner. That is not to imply that spontaneous speech is an inferior form of language; its grammatical and rhetorical deficiencies tend to become apparent only when it is recorded and transcribed and then studied disembodied from its original situational context (Abercrombie, 1965). However, as a result, its system of cues is different from that of formal, edited, written language. The meaning cues may be less consistent and more obscured and, if so, this in turn may contribute to a looser set of constraints upon the listener in the meaning reconstructions he achieves than those imposed upon the reader.

The hypothesis that cue sampling and meaning reconstruction are more precise processes in reading than in listening to spontaneous speech was investigated in an exploratory manner by Walker (1973; 1976). The two types of comprehension were compared in a sample of high school subjects by means of a written recall task following exposure to discourse in either written form or videotape-recorded spontaneous speech. The written recalls were analyzed using post hoc categories related to precision of recall and significant differences favouring the reading groups were tentatively interpreted as indirect evidence of relatively greater precision in the readers' processing, or comprehending, of the original text as compared to that of the listeners.

The present study was intended as a follow-up attempt to confirm or disconfirm the earlier tentative findings through a somewhat more rigorous design. The question addressed was whether reading comprehension involves greater precision of cue sampling

and meaning reconstruction than does listening to spontaneous speech.

Design of the Study

The strategy used was to compare the structured responses of adult subjects to material in written form and material in the form of spontaneous speech. Following exposure to equivalent written or spoken passages, subjects were required to complete multiple-choice tests designed as measures of precision of comprehension.

Preparation of the Stimulus Passages. Twelve graduate students in education were asked to give short, extemporaneous talks on a topic about which they had strong feelings as though they wished to persuade an audience to adopt their view. These were recorded on Sony half-inch videotape equipment without more than a few minutes for preparation and without the use of notes. Two stationary cameras were used with a throat microphone and the speaker stood behind a lectern. A random selection of four of these twelve talks was then made so that the passages used could be said to be representative of such talks given under such circumstances by graduate students in education. Three topics in the sample selected dealt with an aspect of education while the fourth dealt with equality of the sexes. The first talk ran for 6 minutes and 42 seconds, the second for 6 minutes and 22 seconds, the third for 5 minutes and 17 seconds, and the fourth for 3 minutes and 23 seconds.

Verbatim typescripts of these four talks were prepared and these were used as the basis for the production of written versions, attempting to preserve the original meaning but editing the sentences to eliminate any verbal tangles, incomplete constructions, or infelicitous phrasing in order to produce a style that was compatible with conventional written discourse. The material was rewritten sentence by sentence and no attempt was made to reorganize the passages by units larger than sentences—except for the use of paragraph indentations—in order to avoid as much as possible changes of meaning. As a result of this rewriting procedure whereby the ideas of one person were transposed by another, the finished written versions may have suffered from a certain arti-

ficiality which may in turn have affected their credentials as representatives of a particular type of written discourse. This would have to be acknowledged as one limitation of the study. These four written versions were then printed by an offset process as separate booklets. Each written version used considerably fewer words than its oral equivalent: *Passage A,* written version 773 words, oral version 981 words; *Passage B,* written version 721 words, oral version 884 words; *Passage C,* written version 695 words, oral version 829 words; *Passage D,* written version 401 words, oral version 475 words. This difference is compatible with word-count studies of the differences between speaking and writing (Driemann, 1962; Horowitz & Newman, 1964).

Preparation of the Multiple-Choice Tests. For each passage a set of multiple-choice comprehension questions was prepared. Five alternative responses were written for each question, based on categories derived from the earlier study by Walker (1973; 1976). It had been found that ideational units in recall material written immediately following exposure to a spoken or written message could be classified according to five categories: precise recall of an explicitly-stated idea in the original; imprecise recall of such an idea; logical inference based on information in the original; novel ideas that were nevertheless compatible with the content of the original; and novel ideas that were incompatible with the original content. Each of these five categories was represented in the responses for every question on the test.

The purpose of this test was to measure precision of meaning reconstruction in readers and listeners. A precise meaning reconstruction in the course of reading or listening as a product of the processes of cue selection and meaning reconstruction, would, it was assumed, be reflected in the choice of the response from the precise category. A meaning reconstruction that was less congruent with the original content, on the other hand, would be reflected in the choice of a response from one of the other four categories representing imprecision, inference or one of the two types of importation. The following is an illustration of these categories and responses employing a question based on Passage A. The author's main argument was that the education of children whose families

frequently moved from one location to another was not adversely affected by this mobility.

In the course of her talk she made the statement: "I think that Canadians are becoming more mobile all the time. . . ." In the written version this appeared as: "I think that Canadians are becoming increasingly mobile." One multiple-choice question was generated from this statement:

"One belief expressed by the author was that today:

(a) North Americans more frequently move from place to place.
(b) Canadians are moving more and more.
(c) Fewer Canadians are living out their lives in the places where they are born.
(d) Increased mobility in Newfoundland causes instability for families, especially the children.
(e) It is becoming easier for people to move around."

Alternative (b) is a close paraphrase of the original statement and is therefore the precise category response. Alternative (a) is less precise in that it applies to a wider class, North Americans, than the original which refers only to Canadians, a subset of North Americans. Alternative (c) is logically true given the original statement and is therefore the response that fits the inference category. Alternative (e), referring to ease of relocation, a point which was not made in the original, is a case of a response which is probably true given the original passage but which is not necessarily true in a strictly logical sense. This alternative therefore falls into the category of congruent importations. Finally alternative (d), which was not stated or implied in the original passage, and which, moreover, contradicts the main point made, is an example of an incongruent importation.

The test was piloted with a group of 28 undergraduate subjects divided into readers and listeners. An item-analysis using their responses was carried out and a number of non-discriminatory test items was eliminated. In its final form the test consisted of 46 items unequally divided among the four stimulus passages.

As a check on the construct validity of the test categories, an independent judge classified all test item responses using written definitions which had guided the original test construction. The percentages of agreement between the judge's allocations and the

original classification were: *Passage A,* 92 percent; *Passage B,* 95 percent; *Passage C,* 88 percent; *Passage D,* 87 percent. It was felt that this relatively high level of agreement was an indication of the objectivity of the categories and the accuracy with which the response alternatives reflected them.

Adoption of this test format restricted the measurement to literal comprehension of explicitly-stated information. The questions tended to focus upon the details in the original passages so that a further limitation upon the study was that the comparison involved only a rather superficial level of language comprehension.

A subject's score on the test was derived from a weighting system applied to the five alternative response categories. "Precise" responses were weighted 5, "imprecise" 4; "logical inferences" 3; "congruent importations" 2; and "incongruent importations" 1. Each subject's score was therefore the sum of these weighted responses. The assumption on which this system was based was that the five categories of responses could be ranked in this order for precision of comprehension. This assumption seems to be defensible with the possible exception of the placing of imprecise responses ahead of logical inferences which may have been somewhat arbitrary.

The Sample. The sample consisted of 77 students enrolled in an introductory psychology course in a small, predominantly women's university in Atlantic Canada. The course was open to psychology majors, minors or to students who wanted to take it as a B.A. elective. The enrollment in the two sections of the course was 139 students. Participation in the study was optional, although encouraged by the instructor. Perhaps because of imminent end-of-term examinations, many of the students were absent on the day of data collection, and no attempt was made to follow up absentees. Using the class lists, the students were randomly divided into three treatment groups.

Data Collection. The data were collected in one 50-minute lecture period. One group, the Listening Group, watched the videotape recordings of the original talks. A second group, the Untimed Reading Group, read the written versions through once at their normal reading rates. The third group, the Timed Reading

Group, also read the written versions, but they had exactly the same time for reading as the Listening Group had for watching the videotapes. This was to control for the time variable, reading rate normally being faster than the rate of speaking. This third group, therefore, had the opportunity to read over the material more than once. Following exposure to the first of the four passages, the multiple-choice questions on that passage were attempted. Then the second passage was presented and so on. Neither of the two reading groups was permitted to refer back to the passages when answering the questions. All groups answered the same questions under exactly the same conditions except for the medium of passage presentation and the reading time allowed for the Untimed Reading Group.

Hypothesis and Statistical Analyses. The null hypothesis tested was that there would be no significant differences among the mean weighted "precision" scores of the three treatment groups. To evaluate this hypothesis a one-way analysis of variance test was carried out followed by Scheffé tests to locate significant differences.

Findings

A one-way analysis of variance test on the means shown in Table I revealed a significant difference amongst them ($F=9.00$; $df.=2,74$; $p<.01$). The two contrasts of interest in the study were Listening x Untimed Reading and Listening x Timed Reading. A Scheffé test for the first of these produced an F ratio of 5.57 ($df.=2,74$) which was significant at the .10 level. Ferguson (1966) stated that Scheffé himself had recommended that this level be accepted as indicating a significant difference in view of the rigour of the test (p. 297). The second Scheffé test for the Listening x

TABLE I. Weighted "precision of comprehension" scores for the three treatment groups.

Group	*N*	*Mean*	*Standard Deviation*
Listening	27	194.45	11.83
Untimed Reading	28	201.04	8.16
Timed Reading	22	207.05	8.16

Timed Reading contrast revealed an F ratio of 17.86 (df.=2,74; $p<.01$). Consequently the hypothesis was rejected and it was accepted that both the Untimed Reading Group and the Timed Reading Group scored significantly better on the test of comprehension precision than the Listening Group.

To evaluate the reliability of the comprehension precision test a split half procedure was used and a resulting Spearman-Brown coefficient calculated. The coefficient was .64, indicating that the criterion test instrument had only moderate internal consistency.

Discussion

The results of this study showed that mature readers tended to score higher than listeners on a measure of precision of comprehension. This was true both when readers were allowed to read the material once through at their normal silent reading rate and when the time available for reading was controlled to match the time taken for listening. Insofar as the data on which these findings are based were derived from a valid and reliable measure of comprehension precision, the results uphold the tentative conclusions of the previous study from which this present one arose (Walker, 1973; 1976). That conclusion, which can now be stated more confidently in view of the methodological differences in the present study—subjects, oral and written materials, and measuring instrument—is that the process of reading comprehension in mature subjects is characterized by a greater precision of reconstructed meaning than that manifest in listening to spontaneous speech.

The issue addressed by this study was the uniqueness or otherwise of the processes of reading comprehension. Although the results indicate a difference between reading comprehension and the comprehension involved in processing spontaneous speech, they do not permit the conclusion that precision of meaning reconstruction, or comprehension, is uniquely a feature of the processing of written language. Precision of comprehension, as measured in this study, is a relative variable; the conclusion is, therefore, that reading comprehension is characterized by greater precision of meaning reconstruction than is comprehension in listening to spontaneous speech. The conclusion is not that reading

comprehension is a precise process while this form of listening comprehension is an imprecise one. The confirmation provided is that reading comprehension is different in degree of precision from comprehension in listening to spontaneous spoken language.

There would seem to be a discrepancy between this research conclusion and that of Sticht, et al. (1974). Their model of auding and reading saw the two receptive forms of "languaging" ("understanding the conceptualizations underlying the sequences of signs produced by others [p. 11]") as sharing essentially similar processes. The differences lie in the display characteristics of each medium: transience versus permanence, intonation versus punctuation, and presence of peripheral field information in reading versus its absence in auding. However, in the presentation of the model and in the discussion of its validation by research reviews, the authors seem to refer only to listening that involves spoken prose; or written material that is read aloud. The findings of the present study do not deny the Sticht model; they merely suggest one way in which the processes underlying language comprehension may function differently with respect to reading when the comparison is made with listening to spontaneous speech. It remains to be seen as the result of further research whether this relative precision variable is attributable to channel differences or to linguistic structure differences or to both. If channel differences are critical then the prediction would be that listening in general will be distinguishable from reading with respect to relative precision of comprehension. If, on the other hand, it is the looser linguistic structure of spontaneous speech that leads principally to the loss of precision, then reading and listening to spoken prose would be expected to share a similar level of precision.

Another way of looking at the results of this study would be from the point of view of efficiency of communication. The four speakers whose talks were used in this study delivered their material at an overall average rate of 147.8 words per minute which is a rate considerably slower than normal adult reading rates for non-technical material. Young (1973) reported that 250 words per minute corresponds to the 50th percentile for reading rate for college freshmen on the norms for the *Nelson-Denny Reading Test* (p. 328). Over and above this, the written versions were all

appreciably shorter than their corresponding oral versions. Thus the readers in the Untimed Reading Group spent much less time than the listeners in processing the stimulus passages, in many cases less than half the listening time. Yet, these readers scored significantly better than the listeners on the measure of precision of comprehension, indicating that, for mature readers and listeners, material in written form is a more efficient means of communication than spontaneous speech. This relative efficiency may be supportive of the value of written language as a precise form of communication. It may also point to one value of literacy, namely that it permits one access to this more efficient form of language communication. However, it should be borne in mind that this study presented no evidence that the same advantages do not reside in listening to material that is read aloud.

In a sense this conclusion regarding the relative efficiency of reading is in accordance with the conventional view that after the grade seven or eight level a person's reading comprehension tends to be greater than his listening comprehension. This conventional view was challenged by Sticht, et al. (1974) whose exhaustive review of research into comparative studies of reading and listening comprehension showed that of the studies reviewed beyond the grade eight level less than 50 per cent showed an advantage to reading comprehension. However, both the conventional view and the Sticht, et al., review refer to the quantitative aspects of comprehension as measured by standardized tests of comprehension. In terms of the present study, the comparison involved a qualitative aspect of comprehension, namely precision of meaning reconstruction. Thus the greater efficiency revealed for reading comprehension over comprehension of spontaneous speech in this study refers to exactness of comprehension rather than amount of comprehension.

The findings of this study were not congruent with those of a recent study by Young (1973). He found, in comparing listening and reading comprehension, that, when the time variable was controlled by presenting the written material on film at the same rate as the presentation of the oral versions, there was no difference between the comprehension scores of college readers and listeners. Unlike the present study, Young used short prose passages that

were read aloud to the listeners and his comprehension measure was quantitative rather than qualitative. Moreover, he used a more refined method of controlling the time variable than the present study. It would be interesting to combine this control feature of Young's study with the spontaneous speech variable of the present study.

To return to the main issue, the question of whether precision of processing is a feature which distinguishes reading comprehension from other forms of verbal processing, this study has shown, at least for a narrowly selected sample of mature readers and listeners and a narrow definition of comprehension, that reading enjoys a greater degree of precision than listening to spontaneous speech. It might be worthwhile for further comparative research to broaden the definition of comprehension underlying the measuring instrument beyond the literal level used in this study. It would be interesting to see whether reading formal text and listening to spontaneous speech produce different levels of precision of meaning reconstruction when that meaning is extended beyond the recognition of explicitly-stated details. It would also be interesting to include listening to spoken prose, auding in its conventional sense, as one treatment condition in the comparison.

This study has contributed only a small tile to the mosaic that is the issue of the uniqueness of reading comprehension. Until the overall pattern of the relationship between reading and listening comprehension is more complete, one hesitates to draw out educational implications from the present findings and conclusions. It would seem though that the study has revealed one dimension of reading comprehension that could be acknowledged by reading-language curricula. If reading formal writing permits (or requires) a greater precision in language use than listening to spontaneous speech, teachers should perhaps be aware of this. Of course the exact nature of this implication is uncertain until the comprehension precision of listening to written material read aloud is clarified. However, it may be helpful for teachers to be aware that as pupils make the transition from spontaneous language use in oral situations to formal language use in written situations greater precision of comprehension is a new task variable. Commonsense would also say that the same precision characterizes the produc-

tion of written language as well as the reception of written language, so that precision may well be a task variable of literacy in general—reading and writing—that oracy has not necessarily demanded. A curriculum that followed the belief that reading comprehension is not a construct that can be separated from language comprehension or "languaging" would possibly overlook this precision feature of the effective processing of written language.

REFERENCES

Abercrombie, D. *Studies in phonetics and linguistics.* Oxford: Oxford University Press, 1965.

Ausubel, D. P. *Educational psychology: a cognitive view.* New York: Holt, Rhinehart and Winston, 1968.

Ausubel, D. P. *The psychology of meaningful verbal learning.* New York: Grune and Stratton, 1963.

Biggs, J. B. Coding and cognitive behaviour. *British journal of psychology,* 1969, *60,* 287-305.

Chomsky, N., and Hallé, M. *The sound pattern of English.* New York: Harper and Row, 1968.

Driemann, G. H. J. Differences between written and spoken language. *Acta psychologica,* 1962, *20,* 36-57 and 78-100.

Goodman, K. S. Reading: a psycholinguistic guessing game. In H. Singer and R. B. Ruddell (eds.), *Theoretical models and processes of reading.* Newark, Del.: International Reading Association, 1970, 259-272.

Hallé, M., and Stevens, K. N. Analysis by synthesis. In W. Wathen-Dunn and L. E. Woods (eds.), *Proceedings of the seminar on speech compression and processing.* Bedford, Mass.: Air Force Cambridge Research Laboratories, 1959.

Hochberg, J. Attention in perception and reading. In F. A. Young and D. B. Lindsley (eds.), *Early experience and visual information processing in perceptual and reading disorders.* Washington: National Academy of Sciences, 1970, 219-230.

Horowitz, M. W., and Newman, J. B. Spoken and written expression: an experimental analysis. *Journal of abnormal and social psychology,* 1964, *68,* 640-647.

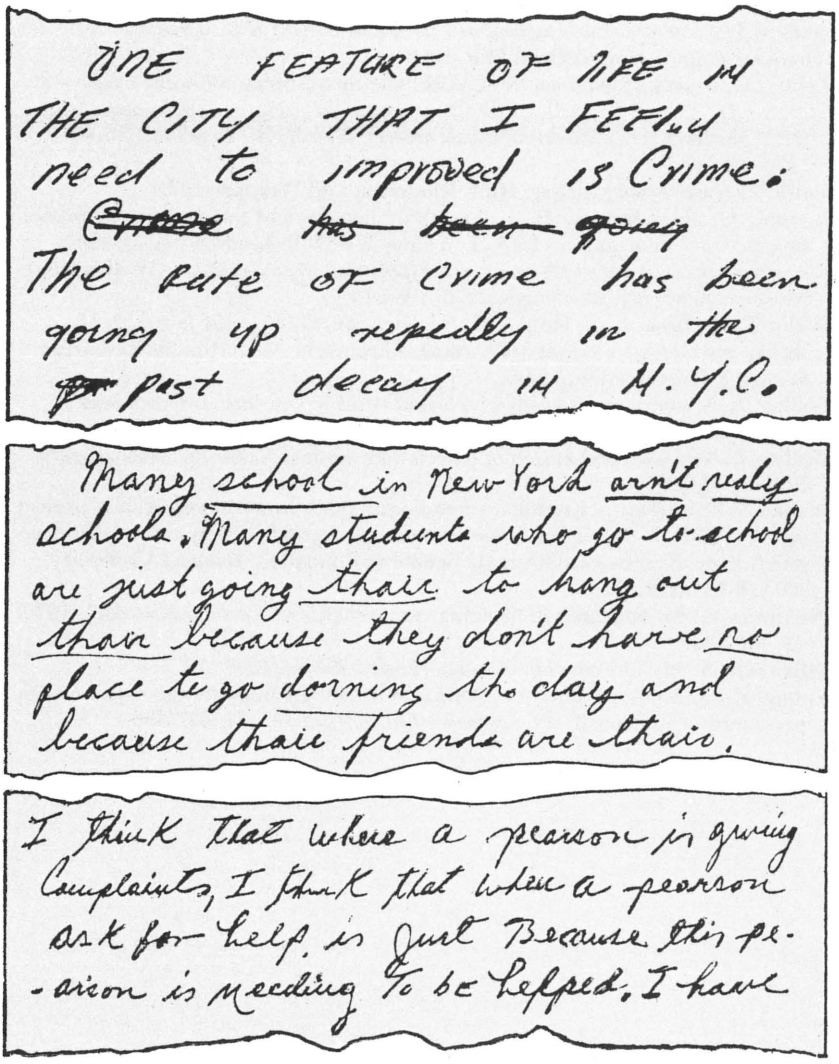
Kolers, P. A. Three stages of reading. In H. Levin and Joanna P. Williams (eds.), *Basic studies on reading.* New York: Basic Books, 1970, 90-118.

Loban, W. *Language ability: grades ten, eleven and twelve.* Bethesda, Md.: United States Office of HEW Report Number 2387, 1967.

Mackworth, Jane F. Some models of the reading process: learners and skilled readers. In F. B. Davis (ed.), *The literature of research in reading with emphasis on models.* New Brunswick: Graduate School of Education, Rutgers University, 1971, 8-167 to 8-100.

Moffett, J. *A student-centred language-arts curriculum, Grades K-6: a handbook for teachers*. Boston: Houghton Mifflin, 1968.
Neisser, U. *Cognitive psychology*. New York: Century-Appleton-Crofts, 1967.
Norman, D. A., and Rumelhart, D. E. A system for attention and memory. In D. A. Norman (ed.), *Models of human memory*. New York: Academic Press, 1970, 19-64.
Smith, F. *Understanding reading*. Holt, Rhinehart and Winston, 1971.
Sperling, G. Short-term memory, long-term memory and scanning in the processing of visual information. In A. F. Young and D. B. Lindsley (eds.), *Early experience and information processing in perceptual and reading disorders*. Washington: National Academy of Sciences, 1970, 198-215.
Sticht, T. G., Beck, L. J., Hauke, R. N., Kleiman, G. M., and James, J. H. *Auding and reading: a developmental model*. Alexandria, Va.: Human Resources Research Organization, 1974.
Walker, L. A comparative study of selected reading and listening processes. Unpublished doctoral dissertation, University of Alberta, 1973.
Walker, L. The Comprehension of speech and writing. *Reading research quarterly*, 1975, *9*, 144-167.
Wanat, S. F. Linguistic structure in reading: models from the research of project literacy. In F. B. Davis (ed.), *The literature of research in reading with emphasis on models*. New Brunswick: Graduate School of Education, Rutgers University, 1971, 8-155 to 8-177.
Wilkinson, A. M. Research in listening comprehension. *Educational research*, 1970, *12*, 140-144.
Wilkinson, A. M. The concept of oracy. *English journal*, 1970, *59*, 71-77.
Young, R. Q. A comparison of reading and listening comprehension with rate of presentation controlled. *AV communications review*, 1973, *21*, 327-336.

This study was funded by the Research and Development Committee of the Faculty of Education, Memorial University of Newfoundland.



Visible language as speech written down (one of a series).
Examples from essays written by newly admitted students to City University of New York as part of an English placement examination. Commenting on the top example, one faculty member suggested, "He is probably spelling 'rapidly' and 'decade' the way he pronounces them."