ABSTRACT
        Reviews and evaluative comments concerning the 11
papers read during the April 1976 portion of the Pittsburgh
conference on the theory and practice of beginning reading are
included in this document. Before the papers are reviewed,
information is presented on some questions posed at the conference
within the context of two issues that were raised at the conference.
The first issue concerned whether or not a reading problem existed in
the United States, and reflected the difficulties in defining the
terms illiteracy, literacy, and functional illiteracy. The second
issue focused on the difficulties involved in providing just the
right kind of reading instruction, including the design and
implementation of a reading program and changes in programs to fit
individual needs or evidences of reading failure. Papers reviewed
were presented by Jeanne Chall, Isabel Beck and Karen Block, Kenneth
and Yetta Goodman, Roger Shuy, Jim Holland, Dennis Fisher, Carl
Frederiksen, Barbara Bateman, Dick Venezky and Dominic Massaro,
Charles Perfetti and Alan Lesgold, and Tom Sticht. (RL)

A Discussion of the Pittsburgh Reading Conference Papers.

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It is indeed refreshing to note that at this, the first of the three
conferences on reading, one cannot find evidence of a sharp demarcation
between pure and applied research. Even in the more theoretically oriented
papers considerable effort was taken to indicate the relevance of the pure
research towards applied problems of reading. According to Garner (1972)
there is a mistaken belief that the scientist accomplishes most when com-
pletely isolated from the applied problems of everyday life. To the contrary,
Garner argues, the research scientist who is interested in the acquisition
of knowledge may be helped immeasurably by attempting to find solutions to
the important problems emerging from the practical arena of everyday life.
Problems associated with reading acquisition present a rich area of inquiry
for both the theoretical and applied scientist.

Before discussing the papers I would like to present some information
relevant to several questions raised at this conference. The first question
had to do with whether or not there was a reading problem in the United States
today. If there is not a serious reading problem then the considerable amount
of time, effort, and money spent on overcoming a supposed problem may well
be wasted. The answer to this question depends on how one defines reading.
If one uses the United National definition of literacy, then we do not have
a reading problem. In the 1960 census only 2.4% of the American population
was found to be illiterate. While the rate itself is low, it does represent

2,619,000 persons. The great majority of these persons, however, were old and over the age of 45.. In the very youngest age bracket 14-24 the national illiteracy rate was about 1 in 170 (Wattenberg & Scammon, 1967).

Still another way to look at this problem is to use the terminology "Functional illiteracy". There were 8.3 million adult functional illiterates in America in 1960. The concept of functional illiteracy in America begins in the 1930's when men were recruited into the civilian conservation corp (CCC) and it was found that those individuals with less than a third grade education were frequently unable to follow written directions. Administrators in the CCC program began to classify men with less than a third grade education as functional illiterates. During the WWII the United States Army discovered that when a soldier had less than a fourth grade education, he was often unable to comprehend written directions. The 1950 census divided the population into those with 5 or more years of schooling and those with less than 5 years of schooling and those with the lesser amount of education were classified as functional illiterates. In the 1960's, when the statistical work on the poverty program was being reviewed, it was decided that all Americans with less than six years of schooling were to be designated as functional illiterates.

It is important to point out that the term "functional illiterate" may be used in two ways. It may be used to denote an arbitrary line in an educational attainment distribution. The 8.3 million Americans so labeled included well over 100,000 who earned over $10,000 a year in 1959, and in former years would have included men like Abraham Lincoln. The second way in which ther term 'functional illiterate' is used is to indicate an arbitrary point on a reading achievement grade level distribution below which the individual is designated as

being illiterate. If one defines illiteracy in a somewhat different fashion, such as the inability to read or write on a level necessary to deal with every-day practical situations, a somewhat different picture begins to emerge. It is assumed that eight years of schooling is sufficient to allow an individual to deal satisfactorily with these everyday reading situations. By this standard about 13% of the population aged 25 years and over are functionally illiterate (Bureau of the Census, 1972).

One may inquire as to how realistic an 8th grade designation may be in terms of preparation for reading the mass of material which must be processed. Analysis of readability levels indicates that much of what we must process in everyday life, such as instructions exceeds this eighth grade level. The Harris study (1971) assessed functional illiteracy by testing Americans across the country in their ability to comprehend written information in materials such as employment ads, telephone dialing instructions, and application forms. This survey found that there was at least 4% of the adult population which were unable to handle these materials satisfactorily.

It should be pointed out that the mismatch between the readability level of the written materials and the reading ability of the individual does not necessarily mean one will not be able to comprehend those materials. An important factor to take into consideration is how highly motivated the individual is who wishes to comprehend the materials. It is a matter of record that prisoners with a relatively low level of reading attainment have been known to read with understanding the legal books which are relevant to their particular criminal cases. With sufficient motivation an individual may read and reread the materials a sufficient number of times in order to comprehend those materials. Readability levels of text seem to be an important factor with individuals who are unmotivated to spend a great deal of time with those materials.

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One way to increase the literacy level of individuals may very well be to decrease the difficulty of the materials with which they will have to come in contact. In keeping with this view the Chicago Continental Bank has simplified its customer account agreements. Checking account agreements read "if you write a check for more money than you have in your account, you will be overdrawn and we will return the check. Because this means extra work for us, we charge $5 for each check returned." Previously, several life and accident insurance companies rewrote their agreements into understandable English. In our public schools, one can find text books in which the read-. ability level exceeds the reading ability of those students by six years. It would seem to be a good idea for school systems to try to match the readability level of the texts they use with the known reading level of their students prior to purchasing these texts. If this practice were followed on a national scale, it forces publishers to be very careful about making their books read-able for the intended school populations.

Another concept of literacy has been brought forth by Bormuth (1975). His concept of literacy does not represent a particular level of reading attainment but is task related. According to Bormuth, a person is literate if that individual is able to read with understanding the materials encoun-tered in any aspect of life, job related or otherwise. Thus it would be possible for a person to be literate when engaged in one type of reading activity and illiterate when engaged in a different type of activity. A college professor for example, may be literate when reading a professional journal in ones area of expertise but be considered illiterate when trying to comprehend an income tax form. Similarly one may be literate when reading material in one's own field and be illiterate in reading in a discipline which is unrelated to one's area of expertise.

Before leaving the question on the extent of the reading problem in the United States today, it would be important to present the data provided by the National Center for Health Statistics (1973). In this study youths aged 12-17 years of age were given a basic test of literacy. Findings from this study indicated that among this age group the illiteracy rate was 4.8%. However, when stepwise regression analysis was done, it was found that the illiteracy rate among low income, black males living in small urban areas increased to 38%. When low income white males, whose parents were relatively uneducated were given this test the illiteracy rate among this group was 46%.

As one can see, the answer to the question regarding the extent of the reading problem in the United States is not easily answered. Part of the problem relates to how one defines literacy. If one uses the Bormuth definition, then all of us are illiterate at least with some kinds of materials. If one uses the data provided by the National Center for Health Statistics, then the illiteracy problem is one which is related to social class factors such as income and demographic factors. Contrary to the sanguine opinion voice by Wattenberg and Scammon to the effect that illiteracy tended to be clustered among older Americans, the National Center for Health Statistics indicates that illiteracy is to be found among our youths as well. As we shall see later, the solution to the problem is not simply one of increasing the decoding ability of those people termed illiterates. Sticht has pointed out that among the illiterate group there are those whose reading comprehension is low as well as their listening comprehension. Increasing the decoding ability of this particular group will probably do little to increase their literacy skills since the problem is not essentially one of decoding.

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Another question which was raised during conference discussion, was related to why can't we do 'a better job in teaching reading. Even when reading instruction is less than ideal, many children learn to read. Silberman (1964) reported on an experimental program used to teach beginning reading. He found that the brighter children acquired the necessary reading skill he wanted them to learn, but the less bright seemed unable to transfer their knowledge to words not specifically taught. Classroom teachers brought in to evaluate the program discovered that a necessary subskill had been omitted. Only after the necessary subskill had been included in the program were all the children able to master the transfer to untaught words. What is interesting to note is that even with an important subskill missing the brighter children were able to overcome this obstacle period. Silberman's study suggests that brighter children may be able to overcome an inadequate program, but the less bright have great difficulty.

Another example of how children were able to overcome a less than adequate teaching program is reported by Feitelson (1973). Prior to the 1950's reading pedagogy in Israel was dominated by an official viewpoint which indicated that the child's own interest was the major factor to consider in constructing a reading program and as long as the child was motivated, it was assumed, the child would acquire necessary reading skills. According to this viewpoint, in order to maintain motivation, it was necessary for the child to read in units larger than the word, mostly in phrase units. This approach, which may be called the holistic approach, indicated that beginning readers were not at all interested in analyzing words into their component parts. Learning letter-sound correspondences were not acceptable practices at that time. Feitelson says that until the 1950's this way of teaching reading was widely used and the results, in general, were satisfactory.

Subsequent to the 1950's there was large-scale immigration from Arab countries and schools began to report failure rates of 50% at the end of first grade. It would have been easy enough to attribute the cause of failure to the new influx of a different group into Israel. However, a study was sponsored to find out what the possible causes of failure might be. Two of the more startling findings emerging from this study were that failure to acquire reading was not evenly dispersed. An entire class would either be successful in acquiring reading skills or unsuccessful. The successful classrooms were found to contain teachers who did not use a holistic approach and who devoted a great deal of time to systematic phonic drill and breaking words into smaller components. A second finding of interest was that parents were very helpful in overcoming the harmful effects of the holistic teaching practices of the day by teaching phonics. What the child was not offered in school, the parents were teaching at home. Whereas many teachers taught in holistic units, at home the parents were drilling the children on the components of words so that the children could attack new words based upon lettersound correspondences and blending. Here in Israel, then, we find that a less than adequate program was overcome either by the willingness of certain teachers to do that which the teacher thought was best for the student and which the parent thought was best for the child. Interestingly we find that both the teacher and parent behavior which was effective, happened to be the teaching of essential decoding skills.

We have just seen how children are able to overcome the shortcomings of certain reading programs either because of high intelligence, teacher skill, or parental intervention. The reading problem in the United States today is generally with children at risk. There is evidence, however, that there are reading programs which are exemplary and which are successful even with

children normally considered to be at risk. Weber (1971) has reported
on the program characteristics of four highly successful innercity schools.
In the four successful innercity schools a major emphasis was placed on
building positive student and teacher interaction, building pride in one's
background and group, extensive use of positive reinforcement, extensive
pupil evaluation, specialized teacher training programs to promote positive
interaction between teaching staff and administration, a belief system from
top administrators to students that high achievement was an obtainable goal,
use of teacher aides who participated actively in the reading program, avail-
ability of a reading specialist within the school, and the use of open records
of student progress so that everyone was aware of how students were coming
along. Although Weber acknowledged that non-school factors can and do con-
tribute to success or failure in beginning reading, he argued that a great
difference in reading achievement can result, depending on the school's
effectiveness of teaching beginning reading. Weber found that strong leader-
ship, higher expectations for the students, and orderly, pleasant, and happy
atmosphere, a strong emphasis on reading, use of additional personnel, use
of phonics, individualization and careful day-by-day evaluation of pupil
progress contributed strongly to the success of the reading programs. Other
studies of exemplary reading programs have identified program characteristics
similar to the ones set forth by Weber.

Two other program characteristics appeared to be associated with success
in reading. At this conference Guthrie (1976) has found that the amount of
time allocated to reading is positively associated with reading achievement.
Other studies have found that time on task is also related to reading achieve-
ment (Lahaderne H., 1968; Samuels & Turnure, 1974). In general these findings
tend to support the notion that one can build exemplary programs in reading,

that the total amount of time devoted to reading is well as the amount of time on task are factors which must be taken into consideration in engineering a successful reading program.

Following the Pittsburgh conference on reading, I had an opportunity to discuss what was needed to involve the teaching of reading with Dr. Sticht, Dr. Guthrie, Dr. Singer, and Dr. Fisher, all participants at the LRDC conference. There was consensus that at the present time a sufficient amount is known about practical aspects of reading so that all children, even those at risk, can be taught to read. The problem then is not lack of knowledge about how to teach reading, but the problem is on one of dissemination, transfer of information, and utilization of this information. Overcoming these problems, in the opinion of this group, represented the major thrust that reading should take in the years to come. In a real sense these problems are not very different from the problems of changing the smoking habits of the American public. Presently we know that smoking is dangerous to health. Despite this knowledge, large numbers of people are unable to change their smoking habits or take up this harmful habit anew. Probably the task of changing smoking habits is a more formidable task than the one of changing the reading practices of school systems. Increasingly, the constraints of limited resources coupled with the desire for excellence, has generated a demand for a results oriented teaching system and for accountability. With a clammor of public interest groups for information about their schools and the recognition by tax payers and educators alike, that the school is in some sense accountable for the products of its system, we may well be moving towards an era in which schools will be doing a more efficient job in the teaching of reading.

Having discussed at some length questions which arose during the discussion at the conference, I should now like to go immediately into a discussion of the presented papers.

Jeanne Chall. Her paper traces what has happened in reading pedogogy since the publication of her book, "Learning to Read: The Great Debate" nearly a decade ago. This opening paper serves an important function in that it permits us to see what has happened in reading in the decade since the publication of this influential book. One of the changes is the added importance given to a code emphasis for beginning reading. The importance of a code emphasis is made manifest by Goldberg (1973) who conducted a large-scale study of beginning reading of disadvantaged children. Goldberg speculated that while teachers may be stressing comprehension, children may be busy devising ways of breaking the sound symbol code and trying to figure out what the printed material says rather than what it means. This comment by Goldberg seems particularly relevant in terms of the current debate going on in educational circles as to whether reading should be begun with a meaning emphasis or a code breaking emphasis.

A decade ago Chall concluded that a code emphasis was justified and subsequent research has given support to her contentions. Dykstra (1967), who evaluated the first grade studies, concluded that those programs which emphasized decoding produced students who were superior in word recognition. More recently Katz & Singer (1976) re-evaluated the data from the first grade studies and found that those programs which emphasize a decoding approach

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produce students who were superior of those subskills necessary for recognizing words which had not been previously taught. Studies by Bishop (1964) and Jeffrey and Samuels (1967) found that students who were given training in lettersound correspondences as well as training in blending, were able to decode words that they had not previously enco■■■■■■These are skills which are important first steps in learning to read. A behavioral task analysis of reading would strongly suggest that accuracy in decoding skills as well as automaticity are important prerequisites for skilled reading.

The second part of Chall's paper presents a modest proposal for reading stages. This section begins with a passing reference to the Coleman findings which indicate that it is difficult if not impossible to find evidence of school input variables associated with academic achievement. Most of the variability in school achievement, according to Colemen, seems associated with socio-economic status factors over which the schools have no control. Critics of the Coleman report have pointed out that such factors as school facilities, books in the library, per pupil expenditures, the presence of science facilities and related measures used by Colemen do not begin to reflect the essence of an organization. One must also understand that socio-economic status is merely a descriptive term and by itself has no causative impact. New analyses of schooling effects (Bidwell & Kasarda, 1975; Brown & Saks, 1975) indicate that, contrary to the Coleman report, schools have a significant impact upon academic achievement.

Chall's stage approach to reading includes a decoding stage, development of fluency, reading for learning, multiple viewpoints, and finally a world view. The value of this stage theory is that recognition is given to the concept of reading as a developmental skill and the specification of the stages.

Several comments are in order regarding the stage theory. Simply labeling an initial stage as the decoding stage implies that this is all that is going on. However, it should be pointed out that although the child may be wrestling with problems of decoding, nevertheless the student is able to comprehend the text. Following the initial stage is the fluency development period. Chall is correct in noting that decoding skill may be separated into two stages. The first stage is what may be termed an accuracy stage while the next stage is beyond accuracy to automaticity (The Perfetti-Lesgold paper goes into this more deeply.) During the accuracy stage, the child is able to recognize words but attention is used in the process. One of the characteristics of this accuracy stage is that the response is laborious and quite slow. It is only during the automaticity stage that attention is not required and that the response characteristically is given at a very rapid rate.

In the third stage, the reading for learning period, the assumption is made that word recognition skill is at the automatic level and the student is able to use written materials for gaining new information. The final two stages in this model represent levels of comprehension that extend far beyond what we may ordinarily think of as literal comprehension.

One important topic which Chall takes up has to do with the development of reading fluency. As Chall points out, the development of fluency generally comes about through practice. For some strange reason practice has become a dirty word in some educational circles and is labeled by a acrimonious term namely that of "drill." Recent work by Chomsky (1976) and Samuels and Dahl (1976) indicate the value of what may be termed drill on developing reading fluency. Using a method which may be called repeated readings, Samuels and Dahl had mentally retarded children read short passages from 50 to 250 words

in length from very simple stories over and over until a criterion rate of
70 words per minute in oral reading was achieved. Then the children selected
the next part of the story and repeated the procedure. This simple adjunct to
the regular reading program produced noticeable improvement in the reading
skills of the children. In fact, we noticed that the children were using this
repeated reading method even when it was not required. The Chomsky method is
similar. Stories were recorded on audio tape and the children listened to
the auditory input while silently reading stories. When the child was sufficiently
familiar with the story, the audio input was discontinued.

In order to get beyond the accuracy stage in word recognition, which
Chall refers to as the decoding stage, a great deal of practice with simple
materials would be helpful. Practice can be provided through repeated readings
or through practice on reading materials which most teachers would consider
to be easy for the child. Ordinarily this level is called the recreational
reading level. With sufficient practice the student should reach the fluency
stage where decoding can be done automatically and attention may then be
placed upon deriving meaning from the material being processed.

Isabel Beck & Karen Block

The Beck & Block paper consists of an analysis of the Ginn 720 and the
Palo Alto programs and provides an insightful view into the state of the art
of curriculum design and material development. In designing reading materials
numerous decisions must be made. What technological base is available to aid
in the decision making process? A start in this direction has been provided
by Coleman (1970) with his tables that scale common words for learnability,
the graphemes for ease of learning their sounds, the English sounds for phonic
blendability, and the letters for ease of printing. The reading literature is
filled with experimental data which would appear to provide additional infor-
mation for decision making, but unfortunately much of the reasearch is not

definitive or counterfindings are available.

A second factor one must consider when appraising curriculum products has to do with the value of these materials. Unfortunately, curriculum materials frequently are used without any prior testing. Some states such as California now require some evidence of the value of the curriculum products prior to their adoption. An exception to the general rule that reading materials are usually not tested prior to their introduction may be found in the federally funded research and development laboratories such as the one in Wisconsin and the regional laboratories such as the Central Midwest Regional Laboratory. Products from these laboratories such as the Wisconsin Design and Harriet Willis' Language and Thinking Program have been tested and revisions made based upon the test evaluations.

One area of controversy and decision making in curriculum design relates to the definition of the reading process. The Ginn program assumes that reading consists of getting meaning from the printed page while the Palo Alto program assumes that reading consists of first decoding from print to sound and subsequently deriving meaning from that mediated sound production. This difference in definition is not mere hairsplitting and academic, because originating from the different viewpoints regarding the nature of the reading, process, different types of reading programs emerge. One type of program attempts to place an early thrust upon deriving meaning while the other program places a heavy thrust upon decoding activities.

Another decision which must be made has to do with the type of student for whom the materials are planned. The materials may be planned for either high IQ or low IQ children, middle socio-economic status children or low socio-economic status children, or normal learners as opposed to the learning disabled. As mentioned earlier, it is generally the lowest 15% of the children

in the IQ range category, or those children at risk, for whom reading is most difficult and the excellence of the materials most important. While it may be possible for a bright, highly motivated child with parents who can provide tutorial help to overcome shortcomings of a poor program, it is far less likely that this child's counterpart will be able to overcome the shortcomings of a poor program.

Another set of decisions which must be considered by curriculum developers has to do with the placement of skill instruction in the instructional sequence. One may note in some reading programs such as the Ginn that the instructional sequence is discussion, reading and then skill instruction. In the Palo Alto series, on the other hand, it is assumed that skill instruction will be introduced prior to story reading so that the child may be helped to read the story.

Another decision has to do with the types of words which will be introduced; by this it is meant that words introduced maybe for building interest in the story contained in the text as opposed to introducing words which correspond to some phonic rule. These decisions represent a trade-off between words selected to enhance a storyline and words selected for decoding. In the Ginn program where the emphasis is on meaning, words are selected to enhance the storyline. But as Goldberg pointed out whereas the teacher may be assuming that students are reading for meaning, the students in fact may be busily attempting to decode words prior to getting that meaning.

Beck and Block are critical of both the Ginn and Palo Alto programs for teaching correspondences in a backward direction--going from sound to letter (a spelling requirement) rather than from letter to sound(a reading requirement). This seems to be a simple enough question to be answered by empirical research. As we know, many associations, though taught in one direction, are also learned in the reverse direction. It is probably the case that although correspondences

are learned from sound to letter they are learned in the reverse direction as well. Whether or not this holds for the low IQ child remains to be seen and a simple empirical study can answer this question. Should this research indicate that children of the educable IQ range and higher learn letter-sound association in both directions then the question remains resolved. If the learning is only the direction taught in the programs curriculum designers should have this information so suitable teaching decisions could be made.

In teaching letter-sound correspondences the Ginn series teaches these correspondences in the context of words. It should be pointed out that in Beck's own reading program, letter-sound correspondences are taught in isolation. Linguists point out that phonemes do not exist in isolation and consequently they believe they should be taught in the context of a word. On the other hand, there is evidence that children tend to learn these correspondences best when presented in isolation.

There are a number of ways in which letter-sound correspondences may be learned. One way may be by what could be called the "discovery method". Here a number of different words all containing the same letter-sound correspondence (money, monkey, merry) will be introduced. The child then searches for the common element. There is also guided discovery in which the teacher points out specifically what these words have in common. Still a third way is to present the sound in isolation just the letter followed by its sound. It is highly probable that the successful teacher is one who uses all of these methods in combination in order to make the point for the child. Both Beck and Block believe that letter to sound is the right direction to teach reading since it goes in the same direction as the terminal behavior. It is also their belief that the child should be taught to blend sounds as well as to produce a limited number of sounds in isolation. It is their contention that teaching

children to blend sounds in isolation has good transfer value to reading.

Both the Palo Alto and the Ginn program use phonics but the Ginn program uses analytic phonics while the Palo Alto program uses synthetic phonics. These procedures grow directly out of the manner in which letter-sound correspondences are taught. As mentioned previously, in the Ginn program letter-sound correspondences are not produced in isolation but within the context of a word. Consequently a whole word is introduced and then each of the correspondences within the word are sounded out, a procedure we call analytic phonics. On the other hand the Palo Alto program does have sounds produced in isolation. Consequently a synthetic type of phonics with blending is used in order to teach word analysis skills.

Still another decision which must be made has to do with where and when digraphs and blends will be introduced. Digraphs such as ph, th, oi, and wh must be seen as a single perceptual unit to which a sound is to be attached.

It is not at all clear when is the best time to introduce digraphs. If one makes a decision to delay the introduction of digraphs until some fairly late part in a teaching sequence, the limited selection of words may have a serious effect upon the child's interest in a story line.

These are just some of the vexing problems which have been touched upon by Beck and Block in their analysis of the Palo Alto and Ginn reading programs. These decisions have to be made by curriculum developers and there are no clear guidelines presently to use in making these decisions.

Before closing this section it should be pointed out that another important decision which must be made by curriculum developers has to do with deciding what sub-skills are to be taught in a program. Presently while we know that there are sub-skills in reading, we do know what all of them may be and new ones are emerging from time to time. For example, it is

now thought to be important to introduce the beginning reader to units called "the language of instruction" and to introduce reading through the use of rebus reading materials. It is thought that these are important skills and approaches to reading and should have transfer effects to more easy acquisition of reading skill.

Kenneth and Yetta Goodman

The Goodman paper entitled "Learning to Read is Natural" presents a number of provocative ideas. An important point made in this paper is the differentiation between that which is natural and that which is innate. The two are not mutually exclusive categories. For example language acquisition has a heavy component of that which may be called innate and in most cases is acquired naturally. The oral communication skill is acquired in a natural manner when the child is motivated and the skill has functional importance in that child's life. According to the Goodmans, an important indicator of a naturally occurring behavior is that the behavior is performed because there is reason and need to perform it, and this is what should occur in reading.

While the Goodmans present one reason for the child engaging in reading, it should be pointed out that children read for a variety of reasons. One reason is that there is intrinsic motivation. For about a decade psychologists have accepted the notion that there is a will to learn, a desire to know, to find things out. These intrinsic motives do not depend upon reinforcement from the world that lies outside the organism but relies instead upon the satisfaction of mastering an element of one's environment.

Another reason children read is what might be termed achievement motivation. In some societies mastery over aspects of one's environment is considered an

important motive. In our society there are certain developmental tasks which are viewed as part of the growing-up process. These tasks would include toilet training, learning to dress appropriately, acquiring social skills, learning to read and write, learning to drive and being able to go about one's city, and learning job related skills. Thus one of the motivations for learning to read is that it is an important developmental task in the growing-up process.

Still another reason that children engage in the reading is that important role models in the child's environment have acquired reading skills. When a child can identify with the model who commands respect the child may adopt the motives of the model. Parents, teachers, older siblings, may all serve to implant upon the child the importance of acquiring this skill.

Children may also engage in reading through the use of external reinforcers. The operant conditioning literature as well as the behavioral management literature is explicit about how the child may be induced to engage in reading. There are a number of people who are critical of the use of extrinsic reinforcers for inducing reading. However a perfectly sound argument may be made that what is really being attempted is to get the child to practice reading to the point where natural reinforcers such as the pleasure of reading will finally be sufficient and the external reinforcers may be withdrawn.

An important point made by the Goodmans and others is that if learning to read could be made as natural as learning listening and speaking skills all children would acquire literacy skills. This hypothesis is indeed interesting but almost untestable. According to this viewpoint whenever a child has either difficulty in acquiring literacy skills one can always

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say that the reason is that the social environment for learning was un-
natural.

The point made by the Goodmans is well taken regarding the need to
provide relevant reasons for reading: Too often teachers forget this
and simply want the child to read because the child is in school and read-
ing is part of the curriculum. Consequently some children may be turned
away from acquiring complex reading skills. To the extent that we can
build an environment where the child is motivated to read for intrinsic
reasons, there is no question but that we will be ahead with regard to our
success rate in teaching children literacy skills.

Assuming that we can provide an environment in which the child will
be highly motivated to read, will that be sufficient by itself to guarantee
success in teaching reading? Since research on characteristics of successful
reading programs indicates that reading method is but one element in a
complex system, it appears to be an oversimplification to believe as the
Goodmans do, "Children are in no more need of being taught to read than they
are of being taught to listen."

The Goodmans claim that beginning readers keep their minds on meaning.
This does not seem to correspond to the facts. The learner must first
decode prior to acquiring meaning and it is important that we give children
these decoding skills so that they can then derive meaning from what is on
the page.

Regarding the claim that if literacy skills were acquired in as natural
way as speech and listening we might possibly have as much success with
literacy as we do with speaking and listening, we can examine this point.
It should be recognized that first language learning with its speaking and

listening components is uniquely human and different in important ways from other kinds of learning such as learning to read. There are a number of arguments to support the belief that learning a language involves innate, genetically determined mechanisms operating on information about the structure of language that a child gets from listening to speech. Support to the notion that language potential is genetically encoded first of all we have. evidence for the fact that language is universal and common to all humans. Second, historical investigations of languages reveal that although spoken languages change, at no time does one find evidence of speech that can be described as aphonemic or ungrammatical. Third, specific language disability in which specific language disability characterized by delayed speech onset, poor articulation, and marked reading disability, in which general intelligence remains unaffected appears to be inherited. Fourth, the developmental schedule of language acquisition follows a fixed sequence so that even if the entire schedule is retarded the order of attainment of skills remains constant. Finally comparisons of children learning non-Indo European language with children learning English indicate a high degree of concordance between the milestones of speech and motor development.

While it is true that speech acquisition appears to proceed easily and naturally, it is not at all apparent that learning to read need necessarily proceed in as easy a manner. The primary reason for this difference is that whereas speech acquisition appears to be natural to humans, much like walking, reading is not a natural behavior indigenous to our species. Whereas all humans have developed language systems, not all societies are literate.

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Generally learning to speak is accomplished with little difficulty whereas learning to read requires considerably more effort. The process of speech acquisiton is gradual, beginning at infancy and extending for a considerable period of time, while introduction of reading is much more abrupt and less gradual. Second there are strong sources of reinforcement involved with speech acquisition while in the typical classroom sources of reinforcement for reading may be much less forceful. Those strong reinforcers that are applied in speech acquisition seem to be applied almost immediately following appropriate speech behaviors, while in the learning to read process the much weaker reinforcers are often delayed. It is indeed accurate to say that for nearly all people first language acqusition appears to be easily mastered. But for a sizeable number of people literacy is achieved only with difficulty, if at all. By providing an environment that is more conducive to motivating children to read, it seems apparent that we can help children acquire reading skills, but this does not seem to be any magic panacea towards reading fluency but merely an important component to pedagogy.

Roger Shuy. This paper on the mismatch of child language and school language states that past research attempting to find the basis for poor reading in the mismatch of child language and school language was a misguided attempt. According to Shuy, ascribing poor reading performance to the mismatch of child language and school language is a thesis not seriously held by anyone. Shuy, having the advantages of 20-20-hindsight, can make this claim but if one looks at the research studies done to test this notion as well as the large scale curriculum projects designed to

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reduce this mismatch one can note that the language mismatch thesis that.
was widely held at one time.

The study of language mismatch has produced some positive results
regarding reading pedagogy. Teachers are more aware today of the fact
that language variation does not represent 'inferior' speech, teachers are
far more willing today to accept deviations from standard English, the
language of reading primers is far more believable and part of regular
speaking patterns, and in teacher's guides and teacher training
institutions a great deal of emphasis being given to the fact that we
have a number of dialects spoken in the U. S. and these simply reflect
regional speaking patterns. Teachers are also being told today that as
long as the child makes a reasonable approximation of the word that is
in the text that the teacher should not correct the child.

Attempts to ascribe poor reading performance to language mismatch
was probably wrong for a number of reasons. First of all, the groups which
were looked at intensively were those which were low on the socio-economic
states scale. These were the groups which had what were called language
mismatch. However, in addition to their language variation these groups
may also have been characterised by lower income, lower education, fewer
books in the home, generally poorer health and prenatal environment, as well
as differences in cultural outlook and motivations. All of these factors
are correlated with reading achievement, not just language mismatch.
We must be cautious about ascribing cause and effect relationships to variables
which are merely correlated. One can argue that some of the other factors
such as economic deprivation as well as health and as nutritional status may

have been as important in the reading factor as the language mismatch.
The second factor to keep in mind is that it is highly unlikely that a
single variable such as language mismatch will account for any large proportion
of variance in reading comprehension. To pin all of one's efforts on this
one factor is probably a misguided effort. In retrospect, however, Shuy
is right in contending that today the mismatch is not seen as the signifi-
cant variable in the lower reading performance of certain groups in our
population.

Shuy is now calling for a new type of research. What is needed now,
according to Shuy, is the study of occupational and institutional dialects.
For example, what does it mean to talk like a teacher? This, according
to Shuy, is where future payoffs in research may come. However, it is
not clear precisely how this knowledge will be useful in reading.

It would seem that the relevance of studying functional language
use would be to show possible mismatches between the child's uses of language,
the use of language in the text book, how language is used by the characters
in the reading textbook, and how these characters are actually using language
in the real world. While this study of functional language mismatch may
be worthy in its own light, it is not at all clear how this would change the
reading accomplishments of children at risk. On the positive side, however,
it might indeed be refreshing for children's books to reflect in a realistic
manner the social status and power of the people within the text in some
appropriate and realistic manner.

Jim Holland. Holland's paper shows how behavioral analysis can be
applied to reading by examining environmental stimuli which control a

behavior which we may nominally label as reading behavior. This analysis
extends to those stimuli which appear on the printed page as well as to those
stimuli which follow a response which have reinforcing potential. One of
the points which Holland makes is that behavior which resembles reading
may merely be an example of a child responding to extraneous cues which
appear on the printed page. Early in the learning-to-read process, it is
not unusual to find children who identify words on the basis of irrelevant
cues such as word length, word configuration, or some unusual characteristic.
As an example, I can recall a child who was able to identify a word on a
flash card but was unable to do so when that word appeared in context.
Since it is usually easier to identify a word in context, I asked the child
why he was able to identify the flashcard word but not when the word was
in his reading book. The child's answer was that the flashcard contained
an ink-spot in the corner and he knew that whenever that ink spot appeared
the response was the one which he gave. Children sometimes learn to identify
words on the basis of irrelevant cues, such as first or last letters.
When given the sentence, "The boy fell down," the student may use the first
letter of the word to identify that word. Then when new words are introduced
which contain the same letters, such as "bats" and "far" the child calls
these words "boy and "fell," simply because the student is using first
letter cues to identify the word.

As many teachers have found who introduce children to reading through
a sight-word approach, there is generally rapid learning of a sight vocabulary
for about the first 25 or 30 words, followed by a period by which there is
virtually no increase in sight-word acquisition. The explanation for this
common finding is that children use irrelevant cues such as the ones

previously mentioned in order to learn the response but then as new words get introduced which have the same letters; the same length, and the same contour, the strategy breaks down and learning stops until the child is able to acquire a more appropriate set of skills for recognizing the words.

There are still other types of extraneous cues which children may use during reading. One of the more ubiquitous examples occurs when pictures and print are presented together. Assume that a picture of a plane and the word "plane" appear together on a card. For the beginning reader the picture more readily illicits the appropriate response and the learner, using what might be called the principal of least effort, will focus attention upon the picture rather than on the word. Of course the correct response is given but to the wrong cue. The proglem is one of transfer of stimulus control. It is important to get the child to focus attention upon the printed word rather than the picture itself.

Still another example of what we must be alert towards, occurs when we superimpose color upon a word. This is done in some reading programs when each color is associated with a particular sound value. The child learns which sounds are associated with particular colors. The problem, however, is one of what happend when the color cues are removed. Generally one finds that when the color cues are removed the response can no longer be emitted because the child was using color as the cue rather than the particular letters contained within the word. Generally speaking, those reading programs which have used color cues as aids to reading have not evaluated the systems for transfer when color cues are removed. Holland is quite correct in claiming that color coding is not doing a useful job. Holland points out that when evaluations have been done for reading programs using

color coding, these evaluations have indicated that the transfer to regular orthography is relatively ineffective.

Dennis Fisher. His paper "Dysfunctions in Reading Disability" has two parts--a theory section in which a model of reading based upon the ideas of Hochberg and LaBerge and Samuels is presented along with another section dealing with applications to disabled readers. Fisher states that he finds no great displeasure in the LaBerge-Samuels model of reading but any model of reading which fails to include peripheral and fovial involvement according to Fisher would be an inadequate model. Perhaps it should be pointed out that considering our current state of development in model building, all we should be doing is creating partial models rather than full comprehensive models of the reading process. Some of our comprehensive models of reading process are so poorly described as to be nearly incomprehensible even to highly trained psychologists. An additional weakness of some of these comprehensive models is that they fail to generate testable hypotheses. The LaBerge-Samuels' automaticity model makes no claim towards being a comprehensive model and focuses instead upon the role of selective attention as it relates to reading.

Before embarking on a description of the educational implication section of Fisher's paper, a few comments about the theory section would be in order. Fisher notes that when spaces between words were removed, reading fluency of fifth and sixth graders was affected, but not the first and second graders. This finding fits well with the data which we collected at the Minnesota Reading Research Project. In comparing the size of the visual unit used in word recognition, the Minnesota studies found that

beginning readers tended to do a letter-by-letter serial process whereas
more highly skilled readers tended to use a much larger unit, the unit of
perception, often the whole word. Eleminating spaces between words by
filling them in with x's would not interfere with the beginning reader since
the beginning reader is simply using a single letter in the word recognition
process. The adult, however, who is using a unit as large as a word needs
to have the space between words in order to set off the word boundaries.
Consequently, elliminating the cue for the word boundary would interfere
with the processing of a more highly skilled reader.

Much of what Fisher has to say about application would be highly
acceptable to reading researchers and teachers. For example, Fisher
claims that the problem in reading disability seems not to be perceptual
and that there is great need for practice on grapheme-phoneme correspondences
until some level of automaticity is reached. Poor readers have also been
found to have short saccadic eye movements which imply letter-by-letter
processing. These readers have also been found to have eye fixations of
some faily long duration which in turn implies long central processing
time.

However, there are other statements by Fisher which probably would
evoke disagreement among a segment of those people who are concerned about
the reading process. These statements have to do with the disabled
reader. The disabled reader is defined as one who has the necessary intelli-
gence for reading, has no pereeptual defects, has normal motivation, has
had adequate instruction, but who does not seem to profit by that instruction.
If this child then is reading at a level sufficiently below his potential,

then he is defined as a disabled reader. This type of diagnosis is of the
weakest type since it has to do with what might be called diagnosis by
elimination. All other sources of possible causes of failure are ruled out
and the only thing then which is left is that of the disabled reader.
One can argue that, in a high proportion of cases reading instruction is
less than adequate and we should look to our failures in instruction before
labeling a child as disabled. One aspect of the problem of diagnosis in
reading failure has to do with what might be called attribution theory.
The problem we are dealing with has to do with causality, or, to what do
we ascribe the causes of a problem. In diagnosing a child as "dyslexic"
we are ascribing reading failure to forces within the child rather than
to forces which may be external to the child. In this case Fisher attributes
the cause of reading disability to an area within the brain, known neuro-
logically as Brocas or Wernickes area. It is important for us to distinguish
between those individuals who have acquired literacy skills and subsequently
lose them through brain ingury, which we may call alexia (an acquired failure
to comprehend written words produced by a cerebral lesion) and dyslexia
which we can refer to as an inherent incapacity to learn or comprehend
written material and where there is no evidence of a brain lesion. There
is adequate impirical evidence for alexia due to brain injury but at the
present time there seems not to be an adequate amount of evidence for the
support of dyslexia, at least to the point where we are able to ascribe
particular areas neurologically associated with this difficulty in learning
the written code.

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Statements by Fisher such as "the dyslexic or reading disabled...will never learn to read" and "understand that dyslexia can't be cured—the brain will not stand for this," are statements which would surprise many, given our current state of knowledge regarding why children have difficulty in reading. These statements seem to be so definitive in tone that they seem out of keeping with the state of the art in reading pedagogy. In fact, many children who have been labeled as dyslexic have learned to read though their rate of progress may be slower than for most and some of these children have gone on to occupations demanding a high degree of reading.

Carl Frederiksen. "Discourse Comprehension and Early Reading" is concerned with the process of how discourse is converted into meaning. Two alternative routes are described as to how this process may be taking place. These are referred to as either top-down or bottom-up processing. Bottom-up processing refers to a procedure in which lower level processing occurs before higher level processing. To put it in Frederiksen's terms in the bottom-up conception, discourse is controlled by textual input, that is, there is more or less automatic parsing of each sentence and input followed by semantic interpretation. In this sense, a language user combines syntactic, semantic and inferential knowledge in an interactive fashion to produce a semnatic interpretation. The top-down version represents an opposite extreme in which a conceptual network is generated from minimal parsing of an input sentence and from knowledge about the context of an utterance. The latter view holds that we bring our experiences and knowledge to bare upon a verbal input and use our semantic generative capacities

as well as the verbal input in order to gather meaning. This latter view suggests that we use text input as needed. According to Fredriksen, top-down and bottom-up processing are not mutually exclusive categories.

Top-down processing seems to be more economical, at least in terms of the memory load imposed upon short term memory. There may very well be times when bottom-up processing occurs, such as when an individual is at a relatively beginning stage in a verbal process, or when the individual encounters difficulty in processing texts at a higher level.

Frederiksen suggests that an individual who encounters difficulty in processing at a higher level, will drop down to a lower level to process material. The LaBerge-Samuels automaticity model suggests precisely the same thing, only with regard to perceptual processing. According to the LaBerge-Samuels model of visual memory an individual who is using bottom-up processing would start at the feature level, combine these features to form letters, letters are then combined to form letter clusters, which then are formed into words, and the words themselves might then be con-catenated to form word groupings. The model assumes that an individual will work at the highest level possible and drop down to lower levels when processing at the higher level seems to be ineffective. Empirical evidence from our laboratory with regard to visual processing has provided support for this model. We have found that in processing common words in regular orthography, the individual may be working at the whole word level. But when these same words are presented in mirror image, the individual drops down to either a feature or letter level. Similar operations may be at work in processing at the semantic level.

Since top-down processing of discourse seems to be more economical,
Frederiksen is concerned that emphasis in reading on subskills and decoding
may be countra-productive in that it may encourage the child to process in
an ineffective direction. Several points need to be made. First, using a
behavioral analysis of reading, one may argue that decoding preceeds compre-
hension. Once the decoding skills become automatic the child will then
be able to process meaning in a top-down direction. What we must be careful
of is trying to instill the processing strategies of highly skilled readers
on the beginning reader, thus denying developmental trends in skill
development.

Barbara Bateman. This paper presents a critical overview of efforts
to solve reading problems of a group of students labeled "Learning disabled."
There are a host of reasons why a child may experience difficulty in reading.
These reasons or factors may include variables external to the child such
as poor materials, poor teaching practices, or poor reinforcing contingencies.
On the other hand, there may be factors internal to the child such as
unusually low intelligence or perhaps some hypothesized but yet unproven
neurological problem.

Bateman's paper is provocative in many ways. Instead of being cautious
Bateman's statements are presented in a very strong form, inviting either
criticism or agreement. One of the major points of Bateman's paper is
that we already know enough about how to teach reading to make a significant
difference. The problem then is not lack of knowledge but one of implementa-
tion. This very view was expressed earlier and Bateman's point seems most
appropriate. Another strong point which Bateman makes is that an early
emphasis on reading without proper emphasis on decoding skills is disasterous

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and may well explain why we have reading failure. As expressed previously, while the teacher is putting an emphasis on meaning, the child may very well be scrambling to decode the words in order to acquire some knowledge as to the meaning of those words.

Bateman proposes that a reasonable approach to overcoming some of the reading problems one encounters includes task analytic programming, applied behavioral analysis, and reducing attention deficits. This implies that detailed analyses of terminal reading behaviors must be done in order to extract subskills which are involved in reaching these desired behaviors. This has not been done sufficiently well in reading. For example, numerous nonessential skills are taught in reading and we presently lack sufficient information on what the necessary skills might be and their order of introduction. While most researchers would agree that a complex behavior such as reading is comprised of subskills, the exact type of hierarchy one might build from these subskill is at the present unclear. Much research needs to be done on the problems relating to hierarchical subskills in reading before this question can be answered.

Bateman emphasizes the important role of attention in reading. There are two aspects to attention; an overt and a covert component, and we should be clear in differentiating between the two. Overt attention related to factors which are generally observed, such as the direction of gaze, compliance with task demands, eyes in book when requested, listening to the speaker, and what generally might be called "withitness." Research on overt attention and its correlation with reading achievement indicates that the two are substantially correlated. It has been known for some time that at least in the early stages of reading girls are superior to boys. This has been attributed

to sex-linked genetic factors. However recent research by Samuels and
Turnure (1974) found that girls were significantly more attentive in class
and also read better. It may well be that the superiority of girls in
early stages of reading may be a factor that is environmentally produced
through greater compliance with teacher task demands rather than a genetic
factor.

The non-observable aspect of attention is also important. This inter-
nal component of attention is important because one's attention can either
be directed on decoding or on getting meaning but cannot be on the two pro-
cesses simultaneously. Beginning readers tend to focus attention on decoding.
Consequently, comprehension suffers on the other hand. Skilled readers,
decode automatically learning one important developmental aspect of reading
represents growth in decoding skill to the point where it can be done auto-
matically free to be deployed primarily on getting meaning.

Another point which Bateman makes is that method does make a difference.
As mentioned earlier, Bateman believes that an early emphasis on meaning in
which decoding is emphasized is disasterous. Since decoding is important
according to Bateman, programs should be selected which focus on this. In
working on decoding skills, teachers should make every effort to providing
adequate opportunity for working on meaning. It is entirely possible to have
a good reading program which teaches decoding subskills and gives the child
adequate experience with meaningful reading material.

Perhaps the most interesting part of the Bateman paper was the suggestion
that courts of law may be used as a means to achieve a measure of educational
accountability and to remedy the poor teaching which may be going on in our
schools. Where teaching is found to be inadequate, one approach may be to
change the pedogogical practices of either the teacher or the school system.

Bateman claims this course has been tried and found to be ineffective.
Instead Bateman would sue in the expectation that the teachers and admin-
istration would be so highly motivated to change behavior that forces from
within the school would merge looking for alternative and better ways to do
the teaching job. In a sense we are dealing with what might be called
educational malpractice. Whereas in medicine there may be courses of
therapy which physicians would agree is acceptable and courses of action
which might be agreed upon as being unacceptable, it is not at all clear
within the realm of educational practice that this type of agreement can be
found.

Dick Venezky & Dominic Massaro

Their paper on "Histories Best Kept Secret about Reading" is about the
relationship between the orthographic structure of a word and its effect
upon word recognition. Orthographic regularity is thought of as those
features contained in a word which reduces the uncertainty of what letters
might be present. Consequently, these features would consist of letter
groupings which correspond to the rules of English spelling. Orthographic
structure is thought to be because rapid word recognition depends upon
strategies which utilize orthographic regularity.

For some time now, since at least the 1900's, researchers have recog-
nized that there is something about the spelling pattern and structure of
an English word which facilitates its recognition. We have known that
recognition of a short common word proceeds about as fast as one can recognize
a single letter, that arrays of letters are recognized faster when they are
ranged to form a word rather than in some totally randomly way. In fact
children who are just beginning to read, when asked to perform a matching
task on pairs of simultaneously presented letter-sequences that were either

words or nonwords, did so faster for the words. This skill would strongly suggest that even beginning readers had abstracted something about the pattern of English spelling which enabled them to make faster judgments about English words rather than their anagrams.

A word may be thought of as a higher order unit with rule governed relations within it. When synthetic words are constructed to correspond to these rules and given to students of different grade levels and different degrees of reading skill, one finds that accuracy of pronounciation increases over time and that good readers are more accurate than poor readers in pronouncing these synthetic words (Calfee, Venezky & Chapman, 1969).

Additional evidence is available to indicate that children seem to abstract that which we may call intra-word redundancy or orthographic structure. For example, Gibson, Osser, and Pick (1963) had first and third grade children read and spell three-letter strings of words presented statisticopally (ran, nar, rna). First graders were most accurate with the familiar three-letter words and also read the pronouncable trigrams significantly better than the unpronouncable ones. Other word by Rosinski and Wheeler (1972) compared children in first, third, and fifth grades on sets of nonsense words varying from three to six letters in length. The task for the child was to indicate which of the set of words typed on a card most resembled a real word. One of each pair was pronouncable and the other was not. First grade children were a chance level, although it should be kept in mind that they had extraordinarily little reading instruction. The other two groups performed significantly better than chance on their task.

Work done at our Minnesota laboratory on the relationship between word length and response latency would seem to throw some light on how orthographic structure is used by a skilled reader. When shown high frequency words in

mirror image text which varied in length from three letters to seven letters, one finds an increase in response latency for each additional letter up to the fifth but then no increase after the fifth letter. This would seem to imply that the skilled reader gathers letter information over the first few letters but then is able to predict what the next letters will be through internalized knowledge of higher order units of spelling pattern. This finding would support the notion of Venezky and Masaro that one of the aids which knowledge of orthographic structure provides to the skilled reader is that less visual information is needed in word recognition.

Before closing the Venezky-Massaro section, one might inquire as to whether spelling patterns and their pronounciation are learned implicitly or intentionally.

Charles Perfetti and Alan Lesgold

Their paper "Coding and Comprehension in Skilled Reading" suggests that one of the limitations to comprehension is found in short term memory. In light of its restricted capacity and of the limited longevity of items placed in it, this "bottleneck hypothesis" seems reasonable. However, it should be pointed out that rate of input into long term memory is relatively slow, so that actually there are two bottlenecks to comprehension.

In addition to the limitations of lona and short term memory, there are other obstacles to comprehension and these may be conceptualized as the components of comprehension. These include word knowledge or vocabulary, prior knowledge of the concepts being discussed, and ability to decode the text without the use of attention. These components of comprehension influence the load on short term memory.

An important question raised in the Perfetti-Lesgold paper has to do with why fast decoding is associated with high comprehension. Fast decoding in and of itself does not seem to be the critical factor but merely serves as ansindicator of automaticity. Thus when we find the relationship between speed of decoding and comprehension, what we are really seeing is a response which seems to be both fast and automatic. Automatic decoding is viewed as an important factor in comprehension because when decoding is automatic then attention may be focused upon deriving meaning.

Another concern found in the Perfetti-Lesgold paper has to do with how one might help poor readers. A point made in their paper is that drill is boring, but that there is need for extended practice. As mentioned earlier there is need for educators to overcome the tendency to associate extended practice with boring drill. As Perfetti and Lesgold state, practice on recognizing words in isolation does not seem to have the transfer effects to fluent reading that one might desire. What seems to be called for is giving the student extended practice on reading materials at the recreational level. The recreational level is considered to be a level at which the student can read the materials with relative ease and with a low rate of word recognition errors.

The final section of the Perfetti-Lesgold paper has to do with measuring verbal coding efficiency. Here a recommendation is made that reading tests be designed to distinguish among three types of performance: inaccurate, slow but accurate, and automated. This seems to be an excellent way to distinguish various types of degrees of reading fluency. Presently reading tests are designed to differentiate accurate from inaccurate performance but they are not designed to identify what might be called automatic and

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non-automatic levels of decoding. Consequently, indicators of automaticity are called for as a next step in the development of reading tests.

An individual is not either automatic in reading as opposed to non-automatic. One can be automatic at identifying letters but be non-automatic with words. The fluent reader may be automatic on nearly all the words encountered but on some words require attention for the decoding of those words. What is needed, then, are indicators of automaticity for different types of important subskills considered to be important in reading. While we are able at the present time to measure the automaticity of a response in the laboratory, the critical need is for the development of paper and pencil tests of automaticity which are easily administered in the classroom.

Tom Sticht

His paper represents an application of the Aud-Read model to reading evaluation and instruction. Sticht has a number of interesting hypotheses. For example, auding surpasses reading ability in early school years, and this gap should close as reading ability becomes more fluent. In a sense this hypothesis represents what might be called a stage theory of reading. The first stage in reading is the transfer from the auditory signals which one has mastered to the written signals. When the student can respond as quickly and as easily to written signals as to the auditory signals, the transfer stage is complete. Using the concepts of Perfetti and Lesgold, one might think of these stages as the pre-accuracy stage, the accuracy stage, and the automaticity stage. When the student is automatic in decoding then the transfer is complete and reading is as efficient as auding.

Another hypothesis presented by Sticht is that auding ability is predictive of reading ability. This assumes that decoding is essentially at the same degree of automaticity as auding is. Consequently, auding ability would then represent what one's general level of comprehension might be.

As Sticht points out, there are many people who can read as well as they can aud but they cannot read to well. This implies deficits or difficulty in both reading and auding comprehension. If one assumes that comprehension is a multi-component process then one can easily understand why an individual may have difficulty in both auding and reading comprehension. An individual may have decoding skill at the automatic level but still have difficulty in comprehension because of possible deficits in any of the other components of comprehension. Thus if one wishes to increase comprehension for those who decode well but who comprehend poorly the remedy lies in improving aspects of comprehension other than decoding.

Another important idea found in this paper is that reading comprehension may be improved by improving auding comprehension may be improved by improving auding comprehension. Too often reading educators make the mistake of trying to improve reading comprehension directly through the reading act when it may be more efficient to do so through auding.

As mentioned earlier, there is a critical need for a test which will indicate if a person is automatic in decoding. Sticht has developed just such a test based on the notion that holding rate of input constant, when comprehension during reading is equal to comprehension while auding, the decoding is at the automatic level. While this is and important start, we need additional work done to measure the automaticity of what may be considered the subskills in reading.

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COMMENTS BY SHIRLA MCCLAIN

RESNICK: I wonder if Shirla McClain would be willing to share some of her reactions as a person responsible for the teaching of reading in--how many classrooms?

MCCLAIN: Six. The main thing that I tried to get from this conference was information to take back to classroom teachers. Because I don't have a theoretical background, it was important for me to hear theorists say the kinds of things that really are directed toward what happens in the classroom, things that are related to educational practice. That is what I came to the conference to get. I did get part of that.

It's sort of funny what kinds of learning take place in conferences like this. I think the incidental things I picked up stick with me a little more than your intended messages.

For instance, to use Shuy's terms, there was sort of a mismatch of language between what practitioners listen for and what theorists say, so that we were not always communicating.

There are several things involved in a conference like this. You had a limited amount of time to present a paper that probably was 40 pages or more in length. You had only 40 minutes to get your message across. To theorists, you probably got the messages across. To people like me, who do not speak that language, you did not always get your message across.

On the first day, Venezky made a joke about translating something into French because it lost a lot in the original. I got that feeling as I was listening to some of your papers.

To use some of Sticht's terminology, it was really a test of my auding skills and your oracy skills. Because you had to present orally, and I did not have the advantage of reading your papers. I probably would have been much better off if I had at least read your papers. So we are both at sort of a disadvantage, and that is not your fault or mine.

But I really wanted to know more about things I could put into practice. I think that in the presentations by Chall, Beck and Block, Goodman, and Bateman, and in some of what Shuy said, there were things that were very clear to me from my orientation as a classroom teacher, things I could take back and put to use.

Some of your other papers, because they were more theoretical and because I did not have time to read them, left me not really knowing what the educational implications were. As I said, this is neither your fault nor mine. I think it's a matter of communication: of being able to read things before hand, or of coming to a common language.

You know, we really need a common ground to understand each other. Not all of the terminology was foreign to me, but there was some I didn't understand. I think that what we really have to ask, when we come together, is: "Are we speaking the same language; do we really understand what each of us is trying to get from these things?"

I like very explicit, concrete examples, the more concrete the better, because that is what I am going to have to give to teachers. I have to take back what you say and put it in some very concete terms.

So, thinking anead to when you present again to practitioners, try to keep
that in mind. Try to include more of the kinds of concrete, clear things that
relate to children.

I think your theories are beautiful theories, and I do think I understood
what you were saying, but I did not always get the educational implications. I'm
not sure what the theories will mean to me when I go back to those classrooms.

I would like to say some very specific things about each paper, but that
would take too long.   I will send those to you in writing. (See comments by
Willis)

RESNICK: I would like to second some of what you have said. In part, the blame
for the lack of communication probably lies here, because we didn't stress enough
the need to address remarks to audiences other than the usual ones.   We should
have stressed this, because this actually was an experiment in communicating
across cultures. Maybe you can keep it in mind as you do the revisions of your
papers.   We might make a small step, but the larger ones are obviously going to
have to come at subsequent attempts of this kind.

Recess

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