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ABSTRACT

Much remains to be learned about the complex structure of skills that make up the reading process. The first priority in improving reading instruction is the identification of minimal sets of skills and knowledge necessary for acceptable reading competence at several stages of development in the reading process. The second priority is the identification of critical program factors by researchers and educators, based on available research and conventional wisdom. The third priority includes the development of test instruments that more adequately measure how a child uses his reading skills and that pinpoint the operation of the independent processes that go into reading. The fourth priority is small scale model research on the effect of critical factors on reading instruction. The fifth priority is an analysis of the availability of human resources. The sixth priority is basic research on reading. (LL)

Priorities on Research on Reading

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Introduction

The need for more effective programs of reading instruction in the United States has been documented in various sources over the past several years (Templeton, 1969). Literacy is no longer a luxury in this country; it is a necessity.

Our knowledge of the nature of the reading process and the acquisition of reading has increased noticeably over the past ten to twenty years, largely as a result of government funding of basic research on reading (Levin & Williams, 1970; Kavanaugh & Mattingly, 1972). A major effort to summarize and integrate the enormous literature has recently been reported (Reading Research Quarterly, Summer 1972; Winter 1973), but the effect of this effort has probably been an increase in information, rather than what would have been a welcome reduction. Most sadly, the impact of these research findings on classroom practice has been minimal. A notable exception has been the work by Southwest Regional Laboratories in the development of their reading program (Cronnell, 1973).

Large amounts of money have gone into evaluation of competing reading curricula, but the outcomes are disappointing to say the least (Bond & Dykstra, 1967; Corder, 1971). There is little one can learn from "bad" data. It is therefore not surprising to find that on re-analysis, the major outcome of the large First Grade Cooperative Reading Study was the discovery that children of high IQ have greater succes in learning to read than children of low IQ (Lohnes & Gray, 1972).

Some time ago, Cronbach (1963) discussed in a most lucid fashion the flaws typical of research on curriculum and program evaluation. It appears that few people involved in the development of reading instruction programs paid any attention to that paper.

Dissatisfaction with efforts to improve existing practices is widespread. There is general unhappiness with curriculum programs now available, with the instruments available for evaluation and assessment of reading progrss, with the training of teachers, and with the overall implementation of reading instruction from kindergarten through secondary school (Carroll, 1971). It is even difficult to reach a concensus about how to define reading in some circles. Despite continuing and genuine committments by administrators and educators that reading is a "Number One" priority, there is little agreement about what action should be taken.

A Statement of Priorities

What should be done about this problem? How should we use available research and development resources to best advantage? Much remains to be learned in theory and in practice about the complex structure of skills that make up the reading process. There exist lists of specific behavioral objectives in reading that number in the thousands. We are often reminded, with good reason, that no one factor is likely to be crucial in improving reading instruction.

Yet we cannot possibly examine all of the manifold factors that have been implicated - home, school, curriculum, virtually everything from individual neurons to the ecological impact of the social and physical environment. Decisions have to be made about which skills are most fundamental to reading, and what factors under control of home, school and society are likely to have the most substantial impact on improving training in reading skills. I would like to suggest some priorities as a basis

for discussion.

Priority 1 - Identification of critical skills and knowledge:

The most significant issue is the identification of minimal sets of skills and knowledge necessary for acceptable reading competence at several stages of development in the reading process. The idea here is to establish three or four "test points" corresponding to primary phases in acquisitin of skilled reading, and to identify a small set of criterial competencies, falling into no more than five to seven categories at each stage. This is a "thought" problem, requiring a blending of available research, current practice and common sense. Existing instructional programs and achievement test systems do not adequately specify skills or knowledge in any defensible fashion. Concepts such as "vocabulary knowledge", "word attack skills" and "comprehension ability" are much too broad and ill-defined to be either teachable or testable. At the other extreme are a compendia of behavioral objectives, which tend to be too minutely specific. Without thoughtful organization, this kind of information can constitute an intolerable burden for the teacher, who, being human, can successfully manage no more than five to nine pieces of information.

I would seem reasonable to me to establish four test points, corresponding roughly to the developmental stages now identified with kindergarten, third grade, sixth grade and ninth grade. These test points range from a prereading stage to a final stage of skilled reading. The variety of abilities changes from one level to the next - at the prereading stage we are concerned with cognitive and linguistic skills; later concepts such as word attack skills and comprehension become important.

Emphasis must be placed on identification of underlying competence, rather than specific performance objectives. It is more important that a

child understand the major vowel contrast in English between long and short patterns than that he be able to pronounce a list of fifty words in which the contrast is reflected. Measurement of an "understanding" takes place in the context of specific test content and performance requirements, but the measurement process should not be mistaken for the understanding that is being measured. Incidentally, these examples reflect a bias toward emphasis on skills and knowledge of a concrete sort, but there are other areas of importance. Another concern might be attitudes toward reading and school, for instance.

Setting priorities is a continuing task in any large system. However, at the present time NIE's position vis-a-vis reading research is being formulated, so the time seems right for a major effort to lay some ground rules. The alternative will be the continuation of past practices; individual researchers will decide what questions interest them, and in what contexts they will carry out studies. I am not suggesting that individual initiatives be shut off, but that some concensus be sought as to the most promising questions for special attention during the next five to ten years.

Priority 2 - Identification of critical program factors

Second priority goes to another "thought"problem. Reading failures have been blamed variously on the teacher, the curriculum, the child, the home, or combinations of these. Within each of these broad categories, there are numerous factors that have been faulted - the reliance on meaning or phonics curriculum programs, the failure to individualize instruction, imporper preparation of the child to meet the demand of the school, mismatch of the child's language with the reading text, and so on. Available research and evaluation provides little consistent evidence of major involvement of any of these factors, alone, or in combination.

Many teachers, administrators and researchers feel they have established effective reading programs within some local context. Much of this work is buried in ESEA Title I and Title III reports, or the ERIC system. Much of it falls far short of reasonable standards for research - the treatments are not clearly specified and monitored, there is gross confounding of variables, and the measurement system fails to cover the performance objectives of the program. While there is a general feeling that program variables (curriculum, teacher characteristics, and so on) are of no importance in determining student outcome, the fact is that we just do not know how important such factors are at present.

It is impossible to undertake systematic research on all of the factors that have been identified as related to the effectiveness of reading instruction. For instance, theproblems listed in the NAE Committee on Reading (Carroll, 1971, pp. 38-41) probably represent a decade of intensive research requiring substantially higher levels of funding than currently exist. A major achievement would be the identification of a minimum set of major variables that distinguish various curricula, schools, teachers, and other program components. This identification could rely in part on existing research, though in many instances confounding of factors makes it impossible to implicate specific elements when differences are found. Some current practices seem likely to complicate such an effort. For instance, a number of dissemination programs are based on the strategy of locating performance outliers, schools in which reading achievement scores are substantially higher than predicted by national norms given the characteristics of thestudent body. This strategy makes sense only if such school/program combinations are outliers in the statistical sense, and a recent Rand study suggests such outliers are extremely rare. Moreover,

moving a program from one context to another and expecting it to carry success with it is probably a forlorn hope.

I think that a group of researchers and educators could reach some agreement, based on available research and conventional wisdom, as to what the most significant factors might be. Without such a preliminary assignment of priorities, the research task exceeds feasible bounds. For reasons discussed in the preceding section, this might be a good time for one or more organized efforts to reach some concensus on what problems to concentrate out efforts during the next several years.

Priority 3 - Development of test instruments

There is a felt need in many quarters for new assessment of evaluation instruments that are linked more directly to function and process in reading. We need instruments that more adequately measure how a child uses his reading skills, and that pinpoint the operation of the independent processes that go into reading. There is general concurrence that normative tests of reading skills are not totally adequate for our current needs in curriculum evaluation and program research. Current achievement tests are inadequate in many of the same ways that IQ tests were found wanting by Mielland (1973). HIs recommendations for improvement in the construction and use of tests seem quite reasonable.

Criterion reference tests are generally tied to such specific outcomes as to be of limited usefulness. It is not important to know whether a child can read "ant" or not, but it is important to learn whether he has acquired an underlying set of letter-sound correspondence rules that allow him to pronounce ant and many other words. The ability to read Time magazine and answer comprehension questions on the material is an objective that represents a conglomerate of skills without enough specificity.

Many teachers with whom I have talked are genuinely unhappy with tests that do not measure what they are teaching. It would seem a desirable goal to reduce the mismatch between instruments designed for program evaluation and instruments used for systematic in-class diagnosis. I think we should re-examine our commitment to large-scale administration of multiple-choice, machine-scorable, group tests. The reliability and objectivity typical of such instruments are certainly desirable properties. But we do not really need to measure every child's reading achievement for program evaluation and it should be possible to design reliable, objective tests that are more appropriately matched to classroom reading skills than presently available tests. If this means that group administration and machine scorability must go by the board, so be it. There are methods for improving the efficiency and comprehensiveness of measurement that would seem to have considerable promise; facet analysis is a good case in point (Schlesinger & Weiser, 1970; Guttman & Schlesinger, 1967).

Priority 4 - Small scale model research on critical factors

We have little empirical evidence at present on the effect of many factors on reading instruction. Rohwer (1972) has criticized most educational research as providing poor experimental control over relevant factors. He points out the need for experimental research that is longitudinal in nature, and that provides protection to the student, the teachers, and other individuals who are part of the educational system. Hilgard's (1972) paper in the same journal also speaks to this issue.

There is a genuine need for a limited number of small-scale evaluation projects in which there is systematic experimental manipulation of factors that have been identified as relevant. Basic to experimental research is the systematic assignment of program factors to experimental

units. This has seldom been carried out in educational research, where the willingness of a school to accept a particular program often determines the assignment of the program to that school. If we are serious about doing research on reading programs, we need to find some feasible mechanism for the systematic experimental manipulation of factors. A research program of this character could be greatly aided by the development of school consortia that would encompass a variety of program factors and that would agree to serve as natural laboratories for systematic research.

Priority 5 - Analysis of human resources

A number of programs are being developed which depend on tutors, teacher aides, parent volunteers, and other human resources. Relatively little is known about the actual availability of these resources. It is generally assumed that many people are willing to help in teaching reading, but we have little information about how many people of this sort there are, about their background and experience, and about what can be done to attract them and facilitate their activities in the classroom. A recent survey of teacher preservice training suggests that most teachers have limited background in reading fundamentals themselves, much less the preparation needed to train and use volunteers (Beall & Dominick, 1973). It would be most informative to carry out some preliminary analyses of the availability of various resources, and to look into the effectiveness of these resources in the classroom.

Priority 6 - Basic research on reading

I would put basic research on the reading process at the bottom of teh list of priorities. It is probably true that we know much more about what to do than we have yet put into effect. The pool of people trained and equipped to carry out good basic research is fairly small, and there are serious questions in my mind as whether the best place for these people

is in the research laboratory, or in research activities much closer to the classroom. Basic research is a much needed investment and I personally dislike assigning it low priority. But I am troubled at the relatively small payoff that has been realized from basic research and see an urgent need for available talent to be turned to problems of a more immediate nature. On the other hand, there need be no real conflict here. There is great potential in the wedding of basic research talent with applications - oriented people. How best to perform this marriage remains an open question. I see many opportunities for "basic research" under many of the priorities mentioned above.

Dimensions of choice

The priorities above represent a number of choices along several dimensions. There is the general question of basic research versus applied research. There is the contrast between the needs of the beginning reader and those of the more advanced reader. Word attack and comprehension skills are frequently contrasted with each other, and thse capture only a part of the complexities of this dimension. Evaluation and assessment efforts have generally followed rather than accompanied the development of new curriculum programs. Finally there is the contrast between relatively cheap small-scale programs with tight control over relevant factors, as opposed to the large-scale allocation of money and resources to classrooms with gross manipulation of program factors.

The broader context of reading failure

There is a fundamental concern that lurks in the shadows of any discussion of priorities in reading research, evaluation, and instruction. Development of reading skills is a very specific educational goal. Our present methods of measuring reading achievement are sufficient to show that existing instructional practice fails to teach many children to read

well enough to meet their needs. However, it is equally clear that the problem is not strictly a function of the reading programs in our schools, nor of shortcomings of students. It also has to do with the allocation of resources by the larger society. We know where the majority of reading problems are found - they occur in urban schools that serve poverty families. It seems coubtful to me that different curricula, better trained teachers, or changes in classroom management routines are like to make much difference in the overloaded school in a disadvantaged neighborhood. We can try to improve the efficiency of the educational process in various ways, but eventually we need to assign more resources to those places where greater need exists. Attention to the priorities discussed in this paper does not cope with the obstacles presented by inadequate resources. However, such a focus would permit us to be more effective in teaching all children to read when resources are available.

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