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Auditory discrimination and reading readiness

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AUDITORY DISCRIMINATION
AND
READING READINESS

by
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A RESEARCH PAPER
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This research paper has been
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To my husband, Greg, and my sons,
Christopher and David, for their loving
support and encouragement; and,

to my parents, for a lifetime of
help and understanding;

this paper is gratefully dedicated.

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CHAPTER I

INTRODUCTION

A current question in special education concerns the relevance of psycholinguistic processes to the teaching of school subjects. Specifically, the question has been raised whether or not training a specific psycholinguistic area has any effect on reading, spelling or mathematics. Further, it has been questioned whether or not psycholinguistic training must be product-oriented, that is, directly related to the subject being taught.

Experience in teaching young children with learning problems has led this writer to the conclusion that a large number of children having difficulty "learning how to learn" had difficulty with auditory processes, particularly memory and discrimination. These same children experienced great difficulty in reading readiness and beginning reading skills. While these two problems were not known to be intimately related, the fact that they were present simultaneously in so many preschool children caused this writer to examine the problem of process versus product teaching more closely.

Educators promoting the use of psycholinguistic teaching stressed the idea that language and reading and spelling were all part of the same process. Thus, isolating

specific areas of difficulty, training the student to strengthen such skills, and relating these skills to subject matter was seen as a natural order of events. Others questioned the validity of "training" a specific skill by means of exercises having nothing to do with words, letters, or numbers.

In the field of learning disabilities, these problems were seen as particularly relevant. A child who could not learn by "ordinary" classroom methods obviously required special instruction. But which direction was most beneficial to pursue: process teaching or product teaching: How were children seen to learn best? Was it possible to isolate a single method?

The purpose of this paper was to explore the following specific areas:

1. The relationship between auditory discrimination (a psycholinguistic process) and reading. Is auditory discrimination a necessary reading readiness skill?
2. The relevance of auditory discrimination training to developing reading readiness skills; that is, should auditory discrimination training be accomplished solely in relation to the product of reading?
3. The practicality of psycholinguistic teaching for learning disabled children.

Definitions

The following definitions were used in this paper.

Psycholinguistics is a field of study encompassing the whole of language input, processing and output. Psycholinguistics combines psychology and linguistics in order to determine how language is received, understood and expressed. Process teaching involves the training of psycholinguistic skills.

Auditory discrimination is the ability to determine the likenesses and differences between sounds.

Reading readiness is being ready to read. This simple definition infers the readying of a number of complex factors including: learner needs, prereading school experience, social adjustment, mental maturity, background of information, language facility, hearing, auditory discrimination, visual efficiency, visual discrimination, neurological status, and sex differences.¹ These factors mature over a period of time. Reading readiness skills were understood to include the following: knowledge of letter names, upper and lower case; accurate pairing of letter names and letter sounds; ability to sound blend; ability to recognize rhyming words; ability to recognize initial and final consonant sounds; recognition of some sight words.

The definition of learning disabilities was formulated by the National Advisory Committee on Handicapped Children (1968). Children with special learning disabilities exhibit

¹Emmett Albert Betts, Foundations of Reading Instruction (New York: American Book Company, 1957), pp. 116-137.

a disorder in one or more of the basic psychological processes involved in understanding or using spoken or written languages. These may be manifested in disorders of listening, thinking, talking, reading, writing, spelling or arithmetic. They include conditions which have been referred to as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, developmental aphasia, etc. They do not include learning problems which are due primarily to visual, hearing, or motor handicaps, to mental retardation, emotional disturbance, or to environmental disadvantage.

Scope and Limitations

This paper encompassed research in the literature from 1960 to the present. Information from reading texts published previous to 1960 was also included.

Studies were limited to those involving preschool or primary-aged children, to whom reading readiness skills were directly related. It was not the intention of this paper to study a specific minority, bilingual or handicapped group, although studies involving any of these groups were used when relevant.

The paper also was strictly limited to the study of auditory discrimination, which is only one area of auditory processing. Related areas such as reception, memory and closure were not researched here.

Summary

The current controversy over process teaching and its value to the learning disabled child has prompted the following study of the relationship between two particular areas: auditory discrimination and reading readiness. Practical experience with young learning disabled children has indicated that these are important areas of difficulty for preschoolers. The question of whether process teaching should be related to school subjects was also of concern.

In Chapter I, definitions of important terms were given, and the scope and limitations for the paper were set.

In Chapter II, research relevant to the previous questions has been reviewed.

CHAPTER II

REVIEW OF RESEARCH

Auditory Discrimination

In the complex process of becoming "ready" to read, many factors could be shown to be relevant. Authorities in the field have varying opinions on what might be at the core of reading success, and what steps might be taken to remediate problems. The areas of auditory and visual perception were main areas of study in the literature, with different conclusions reached by different researchers. The area of reading readiness was not as specifically dealt with as was the general subject of reading; however, the skills written about in many studies were those defined here as reading readiness skills, and were considered as composite skills essential to the whole process of reading. Thus, the concerns of this paper were researched within the limits previously set forth.

The following review of literature was designed to study several specific problems: (1) Could a relationship between auditory discrimination and reading be discerned? That is, was auditory discrimination a necessary skill in the reading readiness hierarchy? Did it facilitate the process of learning to read?

(2) Was auditory discrimination training seen as useful when the process itself was trained or was it necessary to develop auditory discrimination by using only meaningful materials, such as letters and words?

(3) General conclusions were drawn concerning the relevance and practicality of psycholinguistic teaching for learning disabled children. What did the study of auditory discrimination and reading readiness skills reveal about how to teach children with problems?

Auditory Discrimination and Reading

"Adequate auditory discrimination is essential for the acquisition of language and for learning to read."¹ This simple but definitive statement was strongly supported in much of the recent literature related to reading. Beginning with Durrell and Murphy's study of ear training, the idea that auditory discrimination did indeed affect ability to read has been affirmed many times over.² Harris, Heilman, Silvaroli and Wheelock, and Stauffer all concurred,

¹Belle Ruth Witkin, "Auditory Perception--Implications for Language Development," Journal of Research and Development in Education 3 (Fall 1969):62.

²Donald D. Durrell and Helen A. Murphy. "The Auditory Discrimination Factor in Reading Readiness and Reading Disability," Education 73 (May 1953).

on the bases of their own studies and other published reports.¹ The successful mastering of the reading process, then, was seen to be largely dependent on the acquisition of auditory discrimination.

Conversely, some authors studied problem readers and the causes of reading retardation. Again, auditory discrimination was a key to the reading process. Jansky and deHirsch stated: "Inferior auditory discrimination has been implicated in reading failure."² Studies with various groups of children confirmed the fact that children with poor reading skills are usually deficient in auditory discrimination. Chall, Roswell and Blumenthal, and Clark and Richards supported this idea.³ Christine and Christine went even further: "Poor auditory discrimination is one

¹Albert J. Harris, Readings on Reading Instruction, ed. Albert J. Harris, "Intellectual and Perceptual Development" (New York: David McKay Company, Inc., 1963); Arthur W. Heilman, Principles and Practices of Teaching Reading (Columbus, Ohio: Charles E. Merrill Publishing Co., 1967); N. J. Silvaroli and W. H. Wheelock, "An Investigation of Auditory Discrimination Training for Beginning Readers," The Reading Teacher 20 (December 1966); Russell G. Stauffer, The Language-Experience Approach to the Teaching of Reading (New York: Harper and Row, Publishers, 1970).

²Jeanette Jansky and Katrina deHirsch, Preventing Reading Failure (New York: Harper and Row, Publishers, 1972), p. 17

³J. Chall, F. Roswell, and S. Blumenthal, "Auditory Blending Ability: A Factor in Success in Beginning Reading," The Reading Teacher 17 (November 1963); Ann D. Clark and Charlotte J. Richards, "Auditory Discrimination Among Economically Disadvantaged and Non-Disadvantaged Preschool Children," Exceptional Children 33 (December 1966).

causal factor of reading retardation . . . among primary-grade children."¹ Thus, failure to learn to read has been traced back to prerequisites to reading: a good foundation in reading readiness skills, which include auditory discrimination. Efforts by Adelman and Feshback to construct a specific assessment procedure for predicting reading failure were underway.² The authors saw auditory discrimination as an important factor on the perception scale.

Perception itself, both visual and auditory, has been widely studied in relation to reading. While it was generally accepted that both skills were necessary for reading, there was a sizeable number of articles which placed auditory perception (the subskills of which include auditory discrimination) as having primary importance over visual perception. McGrady and Olson found that "Reading is a process which requires integration of auditory and visual information," but went on to say, "Adequate processing of

¹Dorothy Christine and Charles Christine, "The Relationship of Auditory Discrimination to Articulatory Defects and Reading Retardation," The Elementary School Journal 65 (November 1964):99.

²Howard S. Adelman and Seymour Feshback, "Predicting Reading Failure: Beyond the Readiness Model," Exceptional Children 37 (January 1971).

auditory information would seem to be a basic prerequisite to reading."¹

Studies using specific methods or reading series to teach reading were also conclusive that the development of auditory discrimination was vital to successful reading.² Budoff and Quinlan supported earlier findings that children learn more effectively and rapidly via the aural channel than the visual.³ Lindner and Fillmer wrote that the auditory channel might be a better discriminator and predictor of reading success and failure than the visual channel.⁴ Although the latter two studies were concerned with the overall category of auditory perception, the implication that auditory discrimination was, by definition, included in their findings could not be ignored. The relevance of these findings to reading could be seen as being of major importance.

¹Harold J. McGrady, Jr., and Don A. Olson, "Visual and Auditory Learning Processes in Normal Children and Children with Specific Learning Disabilities," Exceptional Children 36 (April 1970):582.

²Helen M. Robinson, "Visual and Auditory Modalities Related to Methods for Beginning Reading," Reading Research Quarterly 8 (Fall 1972); Barbara Bateman, "The Efficacy of an Auditory and a Visual Method of First Grade Reading Instruction with Auditory and Visual Learners," in Perception and Reading, ed. Helen D. Smith (Delaware: International Reading Association, 1968).

³Milton Budoff and Donald Quinlan, "Auditory and Visual Learning in Primary Grade Children," Child Development 35 (March 1964 - December 1964).

⁴Ronald Linder and Henry T. Fillmer, "Auditory and Visual Performance of Slow Readers," The Reading Teacher 24 (October 1970).

Another approach to examining the relationship of auditory discrimination to reading involved testing reading readiness and later reading achievement. Bagford found that reading readiness test scores (including auditory discrimination) were significantly related to later (fourth, fifth and sixth grade) test scores, and that that relationship did not decrease with time.¹ Thompson tested children at the beginning of first grade and again in the eighth month of second grade. He came to the conclusion that auditory discrimination, and IQ scores were highly correlated with success in beginning reading. Thompson recommended that all first graders be given a reliable auditory discrimination test, as this would be highly prognostic in determining good readers.² Flynn and Byrne concurred that IQ scores were related to reading achievement and found advanced and retarded readers did differ significantly in their auditory skills.³ In a study by Alshan, auditory discrimination of consonant

¹Jack Bagford, "Reading Readiness Scores and Success in Reading," The Reading Teacher 21 (January 1968).

²B. B. Thompson, "A Longitudinal Study of Auditory Discrimination," The Journal of Educational Research 56 (March 1963).

³Pauline T. Flynn and Margaret C. Byrne, "Relationship Between Reading and Selected Auditory Abilities of Third Grade Children," Journal of Speech and Hearing Research 13 (December 1970).

sounds was among reliable predictors of first grade reading success.¹

From his examination of the role of auditory discrimination in language and reading, Wepman drew the following conclusions: there was a relationship among hearing, speech, and reading; and, auditory discrimination was necessary and must be sufficiently developed for a child to master phonics for reading.² He cautioned, however, that the ability to hear consisted of a sequential development (acuity, understanding, discrimination), and that auditory discrimination skills might not fully mature until a child was eight years of age. This presented a difficulty in correct assessment of a child's abilities until well past the reading readiness and beginning reading stages of his educational career. Consequently, Wepman suggested that auditory discrimination training might speed up the developmental process so vital to learning to read.³

¹Leonard M. Alshan, "Reading Readiness and Reading Achievement," in Reading and Inquiry, ed. J. Allen Figurel (Newark, Delaware: International Reading Association, 1965).

²Joseph N. Wepman, "The Interrelationship of Hearing, Speech and Reading," The Reading Teacher 14 (September 1961).

³Joseph N. Wepman, "Auditory Discrimination, Speech and Reading," The Elementary School Journal 60 (March 1960).

Thus far, all substantial evidence has pointed to the importance of auditory discrimination in the process of learning to read. Dissenting voices, however, were equally strong if not as numerous.

Spache wrote that the research did not definitively support the existence of a relationship between specific auditory skills (including auditory discrimination) and reading. He theorized that auditory skills were more associated with language. This theory could then be argued by psycholinguists who view reading as language. Spache's argument then seems inconclusive.¹

One controversial area was based on an obvious step in the reading process: learning alphabet letters and their sounds. Lowell and Silvaroli both concluded in their studies that knowledge of letter names was a singly significant predictor of success in beginning reading.² Auditory discrimination was discounted in both studies. Silvaroli, however, admitted that the ability to identify letters was not the cause of reading success or failure, but was the

¹George D. Spache, Investigating the Issues of Reading Disabilities (Boston: Allyn and Bacon, Inc., 1976).

²Robert E. Lowell, "Reading Readiness Factors as Predictors of Success in First Grade Reading," Journal of Learning Disabilities 4 (December 1971); Nicholas J. Silvaroli, "Factors in Predicting Children's Success in First Grade Reading," in Reading and Inquiry, ed. J. Allen Figurel (Newark, Delaware: International Reading Association, 1965).

result of verbal preschool experiences. The child who came to school already knowing the alphabet most likely had a more academically enriching environment than the child who did not know the alphabet. Thus, it was possible that auditory discrimination was also a well-developed skill in successful beginning readers.

In another study, Shepherd tested twenty adequate readers and twenty inadequate readers and found no significant difference between the two groups on a test of auditory discrimination.¹ In his discussion, however, Shepherd acknowledged that the use of the Wepman Test of Auditory Discrimination may not have produced accurate results: perhaps the words on the test were too easy for children already well into reading programs.

The soundest argument against all evidence supporting the role of auditory discrimination in reading seemed to be those concerning the testing and measuring of reading readiness skills. Weintraub and McNinch both stressed the need for new readiness measures because they found that various reading readiness tests they used did not really measure what they were supposed to. Both also wrote that no one

¹George Shepherd, "Selected Factors in the Reading Ability of Educable Mentally Retarded Boys," American Journal of Mental Deficiency 71 (May 1967).

factor was more essential to reading success than any other.¹ Dykstra also found low correlations between readiness tests supposedly measuring the same skills. He wrote that auditory discrimination may contribute to success in learning to read but could not be the sole or main factor.²

The impact of these findings relating to readiness tests could be great: research based upon invalid or unreliable tests might therefore be inaccurate. It would not necessarily mean the findings were wrong, but the proofs upon which the findings were based might not be acceptable.

Another area of serious concern was that of causal factors. Both Chall and Evans were careful to stress that it had not been determined that acquisition of auditory discrimination was a cause of reading success, even though they agreed that a relationship existed between auditory discrimination and reading. Their point was that experimental,

¹S. Weintraub, "What Research Says to the Reading Teacher: Readiness Measures for Predicting Reading Achievement," The Reading Teacher 20 (March 1967); George McNinch, "Auditory Perceptual Factors and Measured First Grade Reading Achievement," Reading Research Quarterly 6 (Summer 1971).

²Robert Dykstra, "Auditory Discrimination Abilities and Beginning Reading Achievement," Reading Research Quarterly 1 (Spring 1966).

not correlational data were now in order.¹ The relationship between auditory discrimination and reading, the existence of which has evidently been established, must now be explored to determine its exact nature in order that it can be utilized in practical ways by classroom teachers. MacGinitie agreed that auditory discrimination was a factor in reading, but felt it required closer scrutiny and further consideration from reading teachers.²

Based upon all the preceding findings, the following sections of this paper were written under the assumption that there existed a definite relationship between the acquisition of auditory discrimination skills and beginning reading skills. Karlin came to the same logical conclusion:

Auditory and visual discrimination seem to be related to reading success. . . . there appears to be a significant relationship between the ability to distinguish between spoken sounds and learning to recognize words. Children who can recognize initial and final consonants in words, rhyming words, and separate sounds in spoken words have less trouble learning to identify words than those who are weak in these abilities. Efforts to produce changes in the way children respond to word recognition

¹Jeanne Chall, Learning to Read: The Great Debate (New York: McGraw-Hill Book Company, 1967); James R. Evans, "Auditory and Auditory-Visual Integration Skills as They Relate to Reading," The Reading Teacher 22 (April 1969).

²Walter H. MacGinitie, "Auditory Perception in Reading," Education 87 (May 1967).

tasks through auditory discrimination tasks have proved successful. Therefore, it is reasonable to conclude that auditory discrimination is a factor in learning to read.¹

Auditory Discrimination
and
Process versus Product Teaching

The outcome of research could be seen as the hampering or facilitating of teaching, for the results of research influence the teaching methods and techniques used in the classroom. Current literature was filtered with controversy over the methods of psycholinguistic teaching. The question discussed, sometimes indirectly, was whether or not teaching (or training a specific skill) should be based on meaningful material (letters, words, numbers), as product teaching proponents theorize; the alternative was seen as training a skill through any methods which related to that skill, as process teachers promote. For example, if a child had an auditory discrimination problem, was that problem to be remediated when teaching reading by discriminating between letter sounds? Or, was the child to be trained to discriminate among a variety of sounds, such as musical or environmental sounds, as well as letters?

¹Robert Karlin, Teaching Elementary Reading, Principles and Strategies (New York: Harcourt Brace Janovich, Inc., 1971), p. 343.

The following review included reading texts as well as articles which might not have debated the question directly. But the reading readiness and beginning reading skills which were recommended indicated where the author stood on the question of process versus product teaching.

Those who favored process teaching saw an intimate relationship between reading and language. Particularly at the readiness or beginning reading level, language and reading lessons could have been nearly interchangeable. Thus, the remediation of an auditory discrimination problem was seen as taking place in all lessons, but most particularly language and reading. Therefore, materials relevant to reading were used in the remediation process, along with many other procedures and materials relevant to language learning.

Fox, Witkin, Johnson and Myklebust, and Heilman all strongly asserted that language and reading were more than related.¹ Reading was seen as another form of language; language was recognized as essential to reading. Certainly differences of form--oral and written--were examined. But

¹Sharon E. Fox, "Assisting Children's Language Development," The Reading Teacher 29 (April 1976); Witkin, "Auditory Perception--Implications for Language Development"; Doris Johnson and Helmer R. Mykelbust, "Dyslexia in Childhood," in Learning Disorders, Vol. I, ed. Jerome Hellmuth (Seattle, Washington: Special Child Publications, 1965); Heilman, Principles and Practices of Teaching Reading.

basically, the development of language and reading skills were intertwined. The natural conclusion drawn from this was that a particular problem of psycholinguistic nature, such as auditory discrimination, would hamper learning in the reading-language area, and therefore had to be dealt with in reading and language.

Betts wrote that "Auditory discrimination is an ability to be developed during the prereading period as well as during reading instruction."¹ He further related auditory discrimination to speech sounds and readiness skills. His writing on auditory discrimination involved some "non-meaningful" methods: hearing tests, musical games, informal evaluation techniques.

Several studies examined testing procedures which were process, not product, oriented. They included the Illinois Test of Psycholinguistic Abilities (ITPA) and the Test of Non-Verbal Auditory Discrimination (TENVAD).² The ITPA measured psycholinguistic skills, and the author, Samuel Kirk, devised techniques to remediate difficulties;

¹Betts, Foundations of Reading Instruction, p. 129.

²Corinne E. Kass, "Psycholinguistic Disabilities of Children with Reading Problems," Exceptional Children 32 (April 1966); David A. Sabatino, "The Construction and Assessment of an Experimental Test of Auditory Perception," Exceptional Children 35 (May 1969); Norman A. Buktenica "Auditory Discrimination: A New Assessment Procedure," Exceptional Children 38 (November 1971).

these techniques were directed at the process, not at content.¹ The TENVAD subtests were pitch, loudness, rhythm, duration and timbre, all considered involved in the acquisition of auditory discrimination. The TENVAD was found to correlate highly with first grade achievement in word knowledge and total reading.

Suggestions for possible teaching techniques which would train auditory discrimination were given in other articles. Flack described the function of auditory discrimination as ". . . detecting gross or fine differences among sounds; detecting differences and similarities between environmental sounds, speech sounds, and voice qualities which reflect emotion."² This suggested a process-oriented training or remedial program, as well as the content-oriented techniques listed in the article (consonant sounds, initial and final consonants).

Stanchfield developed a readiness program based on concepts of pitch, volume, direction, duration, sequence, accent, tempo, repetition and contrast, and distance of

¹Samuel A. Kirk and Winifred D. Kirk, Psycholinguistic Learning Disabilities, Diagnosis and Correction (Chicago: University of Illinois Press, 1971).

²Vilma T. Flack, "Auditory Processing for the Child with Language Disorders," Exceptional Children 39 (February 1973):414.

sounds.¹ While content materials could have been used in any of these exercises, the emphasis was clearly on the development of the process of auditory discrimination.

Rosner utilized a continuum of skills to develop what he termed auditory analysis skills.² The series went from reproducing clap patterns to substituting consonants in words with consonant blends. He thus saw rationale for process-oriented teaching techniques as well as those of content.

Flower listed auditory processes which might be related to learning to read. They included sensitivity (loud and soft sounds), attending (through background noise), and discrimination (differentiating among sounds), as well as processes more directly related to reading.³

Sawyer saw a need to turn from content teaching to process teaching, and summarized a popular view:

Perhaps future efforts should focus on learning more about the learner and how to teach him more effective learning styles. Perhaps we need to attend less to content and more to process if we ever hope to reach the

¹J. M. Stanchfield, "Development of Pre-Reading Skills in an Experimental Kindergarten Program," The Reading Teacher 24 (May 1971).

²Jerome Rosner, "Auditory Analysis Training with Pre-readers," The Reading Teacher 27 (January 1974).

³Richard M. Flower, "The Evaluation of Auditory Abilities in the Appraisal of Children with Reading Problems," in Perception and Reading, ed. Helen K. Smith (Delaware: International Reading Association, 1968).

ideal--one hundred per cent literacy. The preschools and elementary schools of the future must function to extend the child's repertoire of ways to solve problems and make him more flexible in his use of different cognitive styles as the situation demands. This approach will help him to learn content but more importantly he will develop new ways of promoting his own learning and solving his own problems.¹

Even among psycholinguists, however, there were those who felt the need for more evidence to substantiate the effects of process teaching. Lerner was one who admitted that training a subskill (of the ITPA) had not been related, casually or otherwise, to academic achievement.² Lerner did seem to feel that the relationship did exist, it had only to be proven.

Others were more definite in their demands that training of an isolated skill, such as auditory discrimination, be done only in relation to content areas. They supported Hammill and Larsen's contention that ". . . the efficacy of training psycholinguistic functionings has not been conclusively demonstrated."³

¹Diane J. Sawyer, "The Diagnostic Mystique--A Point of View," The Reading Teacher 27 (March 1974):559.

²Janet W. Lerner, Children with Learning Disabilities: Theories, Diagnosis and Teaching Strategies (Boston: Houghton Mifflin Company, 1971).

³Donald D. Hammill and Stephen C. Larsen, "The Effectiveness of Psycholinguistic Training," Exceptional Children 41 (September 1974):12.

Spache and Weener, Barritt and Semmel¹ criticized the ITPA as inconclusive, saying it did not prove its own relevance to educational performance, specifically reading. Spache also wrote that training auditory discrimination for its own sake, or unrelated to content was a useless exercise.

Supporting the use of phonics, many authors² suggested programs or techniques to improve auditory discrimination skills only as they related to reading. They stressed that making the auditory discrimination training exercises meaningful, or relevant to reading, facilitated the

¹George D. Spache, Investigating the Issues of Reading Disabilities (Boston: Allyn and Bacon, Inc., 1976); Paul Weener, Loren S. Barritt, and Melvyn I. Semmel, "A Critical Evaluation of the Illinois Test of Psycholinguistic Abilities," Exceptional Children 33 (February 1967).

²Dolores Durkin, Teaching Them to Read (Boston: Allyn and Bacon, Inc., 1970); Eddie C. Kennedy, Classroom Approaches to Remedial Reading (Itasca, Illinois: R. E. Peacock Publishers, Inc., 1971); John Kiraly Jr. and Alexandra Furlong, "Teaching Words to Kindergarten Children with Picture, Configuration, and Initial Sound Cues in a Prompting Procedure," The Journal of Educational Research 67 (March 1974); Robert T. Rude, Sheldon Niquette and Phyllis Foxgrover, "The Retention of Visual and Auditory Discrimination Reading Skills," The Journal of Educational Research 68 (January 1975); Sigmar Muehl and Shirley Kremenak, "Ability to Match Information Within and Between Auditory and Visual Sense Modalities and Subsequent Reading Achievement," Journal of Educational Psychology 57 (August 1966).

acquisition of reading skills. A study by McLeod strongly reinforced this idea.¹

A different approach to remediating reading problems was promoted by Johnson and Myklebust.² They acknowledged the important role of auditory discrimination in learning to read, and worked to remediate specific problems by induction: from learning a whole word to distinguishing its parts. Each remedial step incorporated reading skills, rather than process skills.

Bond and Dykstra compared various methods of beginning reading and concluded that ". . . knowledge of letter names and the ability to discriminate between word sounds appear to have the greatest relationship to reading success."³ Auditory discrimination was then to be trained in relationship to reading.

Lasky, Jay and Hanz-Ehrman conducted a study in which they determined that linguistic meaningful cues (familiar

¹John McLeod, "Some Psycholinguistic Correlates of Reading Disability in Young Children," Reading Research Quarterly 2 (Spring 1967).

²Doris Johnson and Helmer R. Myklebust, "Dyslexia in Childhood"; Doris J. Johnson and Helmer R. Myklebust, Learning Disabilities: Educational Principles and Practices (New York: Grune and Stratton, 1967).

³G. I. Bond and R. Dykstra, "The Cooperative Research Program in First Grade Reading Instruction," Reading Research Quarterly 2 (Summer 1967):117.

monosyllables) facilitated the training of auditory processing skills for reading. They felt that training procedures should be relevant to content material.¹

These studies all defended the premise that training of a process such as auditory discrimination must take place within the context of content being taught, such as reading readiness. They implied an opposition to process teachers and their use of "nonmeaningful" training materials.

Such a conclusion need not be drawn. In fact, the opposing viewpoints were seen as neither mutually exclusive nor even very far apart. The psycholinguists promoting process teaching viewed reading as a part of language. As such, the training of auditory discrimination was basically a language function; the fact that it bore a relationship to reading meant that it would also be trained, using materials relevant to reading readiness such as letter sounds and combinations.

Those promoting product teaching seemed simply to be taking a narrower view of the role auditory discrimination played in learning. Certainly if one taught reading, one used contextual materials to develop skills or ameliorate problems. But if one considered auditory discrimination-- or reading itself--as part of the overall language process,

⁴²Elaine Z. Lasky, Barbara Jay, and Mary Hanz-Ehrman, "Meaningful and Linguistic Variables in Auditory Processing," Journal of Learning Disabilities 8 (November 1975).

training procedures could be drawn from a wider range of activities and still be considered in context. The future role of research was now seen as proving the practicality, or indeed, necessity, of doing so.

Auditory Discrimination and the Learning Disabled Child

The literature revealed a widening viewpoint that learning problems and reading problems almost always occurred simultaneously, and that the two fields of learning disabilities and remedial reading must accomplish what Lerner called a "synergism"¹ to get agencies to cooperate, not merely overlap. McGrady and Olson wrote that children's learning problems were usually evidenced in the reading process, but that children who were failing in school really had language disorders.² The two fields were therefore inseparable.

Mavrogenes, Hanson and Winkley described nine categories of tests relevant to reading (including tests of auditory acuity, discrimination and perception) and wrote that learning disabilities research opened up language

¹Janet Lerner, "Remedial Reading and Learning Disabilities: Are They the Same or Different?" Journal of Special Education 9 (Summer 1975).

²McGrady and Olson, "Visual and Auditory Learning Processes."

development as an area to be considered as a reading inhibitor.¹ Artley and Harding felt that learning and reading problems were so similar, it was useless to keep the two areas separate. They saw teacher training as necessarily covering fields of symbolic learning, neurology, and language development, as well as traditional courses.²

The link between learning problems and reading problems was also considered in more specific terms, and auditory discrimination was seen as an important factor in reading and language development. Adopting a psycholinguistic approach to learning disabilities, Hoffman wrote that the teaching process involved discovering which step of learning was not functioning and beginning teaching there. She strongly related auditory discrimination to phonic and spelling problems.³ It would then follow that if an auditory discrimination problem was uncovered, remedial techniques should be used immediately before reading problems began. Zoepfel went even further than the self-evident relationship between auditory discrimination and reading and wrote:

¹Nancy A. Mavrogenes, Earl Hanson, and Carol K. Winkley, "A Guide to Test Factors that Inhibit Learning to Read," The Reading Teacher 29 (January 1976).

²A. Sterl Artley and Veralee B. Hardin, "A Current Dilemma: Reading Disability or Learning Disability?" The Reading Teacher 29 (January 1976).

³Mary S. Hoffman, "A Learning Disability is a Symptom Not a Disease," Academic Therapy 10 (Spring 1975).

The assessment and improvement of auditory discrimination in the learning of children with neurological disabilities may be the avenue to social competence and social acceptance for these children.¹

Most recently, a television program, "The Puzzle Children,"² spotlighted a child with an auditory discrimination problem as having a learning disability. The child was shown to have great difficulty learning reading readiness skills, such as sound-symbol relationships and sound blending.

The interrelationships among auditory discrimination, reading, language and learning disabilities was thus concerned with each of these areas, both separately and as they affected one another. Wiseman, therefore, outlined the child-centered approach to learning disabilities, which had as its starting point the child and his needs and problems, rather than a division of skill-related fields.³ He further took part in devising the MWM Program for Developing Language Abilities⁴ which includes remedial techniques for auditory

¹Mary M. Zoepfel, "Auditory Discrimination in the Learning Difficulties of Children with Neurological Disabilities," The Reading Teacher 15 (November 1961):118.

²PBS "The Puzzle Children," October 17, 1976.

³Douglas E. Wiseman, "Remedial Education: Global or Learning Disability Approach?" Academic Therapy (Spring 1970).

⁴Esther H. Minskoff, Douglas E. Wiseman, and J. Gerald Minskoff, "The MWM Program for Developing Language Abilities" (Ridgefield, New Jersey: Educational Performance Associates, 1972).

discrimination problems. Thus, the field of learning disabilities is in the throes of coping with definitions, specialty areas, and teaching divisions in an effort to determine how children, no matter what their problems, should be taught.

Summary

This chapter contained a review of research pertaining to three specific questions. What, if any, was the relationship between auditory discrimination and reading readiness? In teaching or training the skill of auditory discrimination, was it necessary to relate it to the content of reading? And of what consequence to the field of learning disabilities were such findings?

In Chapter III, research findings are summarized and conclusions drawn.

CHAPTER III

SUMMARY

The purpose of this paper was to examine the role of auditory discrimination as a reading readiness skill.

Specifically, the following subjects were discussed: the nature of auditory discrimination as a reading readiness skill; the training of auditory discrimination in the reading readiness hierarchy; and the practicality of psycholinguistic teaching for learning disabled children. Appropriate definitions and the conditions of this paper were set forth in Chapter I.

A review of the literature on auditory discrimination did not provide conclusive answers. For each question studied, there were differing professional viewpoints. However, some conclusions were drawn based on evidence and arguments presented.

(1) Auditory discrimination was determined to be a reading readiness skill. It was not always seen as the deciding factor of success or failure in learning to read. However, it was an important part of the readiness process in most studies, and therefore auditory discrimination was considered a necessary part of developing reading skills.

(2) The development of auditory discrimination was rarely seen as an end in itself. It was always related to a reading readiness program, or to the development of language, which was then interrelated to reading. The general consensus was that the acquisition of auditory discrimination was vital to the process of learning to read, which requires adequate use of language skills. Whatever the emphasis of the study, language or reading, process teaching or product teaching, auditory discrimination learning was an essential element.

(3) Learning disabled children were frequently seen as having language problems which manifested themselves in the children's inability to learn to read. The logical conclusion was that learning disabled children required remedial help and perhaps special training in language and reading, including auditory discrimination.

It was evident that as the field of learning disabilities was being more closely studied and analyzed, the practice of separating content areas such as language and reading was becoming less practical, perhaps heading for obsolescence. Further studies and more varied teacher training to include psycholinguistics, reading, and psychology could be seen as forthcoming. In the end, the beneficiaries must be the children who need help.

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