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# Approaches to reading for the mentally retarded

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APPROACHES TO READING FOR THE  
MENTALLY RETARDED

CARDINAL STRITCH COLLEGE  
LIBRARY  
Milwaukee, Wisconsin

by  
Mary Rita Carey

A RESEARCH PAPER  
SUBMITTED IN PARTIAL FULFILLMENT OF THE  
REQUIREMENTS FOR THE DEGREE OF  
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This research paper has been  
approved for the Graduate Committee  
of the Cardinal Stritch College by

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## CHAPTER I

### Introduction

The mentally retarded have been with us from prehistoric times but it is only in recent years that their identity has been distinguished from that of others, their problems have been perceived, and greater efforts have been made toward positive help.

Catholic philosophy offers a positive approach to the education of mentally retarded children. The prime purpose in life for the retardate, as for every human individual is to give glory to God by fulfilling His divine plan according to individual capacity. Perceptive philosophy recognizes that mentally retarded children have God-given rights based on the dignity of a human person endowed with an immortal soul.<sup>1</sup>

Functional literacy--the power to read and to write with an efficiency commensurate with ability--is a chief societal demand in a technological society. The retardate must overcome problems and difficulties while striving to meet this goal. Owing to his limited abilities, the difference between his reading proficiency level and his interest level increases as he advances in school.

The mentally retarded child is more like than unlike the normal pupil; his needs, capacities and limitation must be recognized and considered in the teaching program. It is possible for him to learn

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<sup>1</sup>Sister Mary Theodore, O.S.F., "Educating and Training the Mentally Retarded," The Catholic Educator, XXXV (November, 1964), 282.

read if the teacher is competent and zealous and if instruction is systematic. The zealous teacher can encourage this child to appreciate the desirability of reading, to broaden the range of his interests and to widen his horizons.

The aim in teaching reading to the retardate is to help him become as literate as his potential allows in order that he may better meet the minimum requirements of a literate society. It is essential that he not only be taught to read for information, protection and pleasure, but even more important, for the personal satisfaction he receives from being able to feel or say, "I read: therefore I am like you."

It is not known precisely the time when a mentally retarded child should commence learning to read. It has been advocated to wait until the child has reached an adequate mental maturity to warrant beginning reading. It is not advisable to teach activities requiring skills or interests which as yet have not been developed. If they are to be learned, they must fall within the level of readiness of the learner and the means of presentation must meet the level of understanding that may be affected by maturation.<sup>2</sup>

The reading program should have realistic goals. Reading should aim at providing the skills required to read the newspaper, for recreational need, and specific skills that will aid him in the performance of the kind of work the retardate will probably do.

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<sup>2</sup>Norris Haring and Richard L. Schiefelbusch, Methods in Special Education (New York: McGraw-Hill Book Company, 1967), p. 77.

There is no best method especially applicable to the reading needs of the mentally retarded. Methods of teaching reading applicable to children of normal intelligence are generally applicable to mentally retarded children capable of learning to read. At all stages of the mentally retarded reader's development a goodly proportion of his reading should be related to activities and environmental experiences.<sup>3</sup>

An effective program in reading should be well-planned, systematic and have sequence with a foresight for flexibility within the general framework.

Some basic principles to be kept in mind when teaching reading to the mentally retarded:

1. The reading experience should be at the child's mental level and not at the age level.
2. The activities should be chosen for their appeal, interest and be of useful value.
3. Concrete situations should be extensively used for the development of reading activities.
4. Instruction periods should be short to avoid fatigue.
5. The highest level of reading attainment to be expected of the child in his school period should always be kept in the mind of the teacher.

The teacher of the retarded child must use methods that will take into account the child's mental disabilities. Since he lacks voluntary attention and effort, his interest must be aroused--he must feel the need to know something. After interest has been aroused,

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<sup>3</sup>Stella Stillson Slaughter, The Educable Mentally Retarded Child (Philadelphia: F. A. Davis Company, 1964), p. 86.



the teacher, on the child's plane, neither talking over his head nor to attract his attention, should present the subject matter as concretely and through as many senses as possible. This is best accomplished when classroom activities are based largely on tangible features of the environment, thus providing the child with rich first-hand and pictorial experiences. Asking him to bring to the classroom objects or pictures to illustrate a particular theme and allowing him to explain it to other youngsters will arouse and stimulate the child.<sup>4</sup>

All children need effective instruction in reading. There are children whose learning rate is low due to retarded mental growth and it is imperative that their instruction be excellent if they are to develop into contented and useful citizens. They will need an understanding teacher who can see into their handicap. With love and patience the teacher will endeavor to cultivate a level of reading capability that will enable these individuals to take their place in society and contribute their share to its welfare.

#### PROBLEM

The problem of providing for the specific reading needs of the mentally retarded is a challenge to the special teacher. The reading program for these children has to include the whole area of language arts. In developing a reading program it must be kept in mind that the material presented be within the realm of their speaking vocabulary, interest and retention levels.

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<sup>4</sup>Sister Joanne Marie, O.S.F. "The Education of the Retarded Child." NCEA Bulletin, LI (August, 1954), 575.

It is the intent of the writer to present some reading approaches applicable to the mentally retarded. Among these approaches are: Phonics, Language Experience, Basal Reader, Initial Teaching Alphabet, Programmed Instruction, Teaching Machines, Audio-visual and Individualized.

## CHAPTER II

### Review of Research

It has been found from experience that no one reading method works with every retarded reader. The approach selected will depend upon what is discovered about how a particular child learns. We must be ready to try another approach if one does not work. But having found one approach that works with one child, we will be systematic in our application of it so that the child may make continued progress at a rate consistent with his learning pattern.

### Phonics

Some generalizations in the teaching of phonics are given to aid the teacher who wishes to utilize this method with mentally retarded children.

1. Derive the same sounds from words which the child already knows and apply these sounds to words that the child does not know by sight but which are within his meaningful vocabulary.
2. Give phonic training outside regular reading period and make the transfer to the reading situation.
3. Comprehension should not be forgotten during phonic training. Reading is taught as a thought process, whereas phonics introduces mechanics of reading. If the child first learns to read thought units and has separate phonic lessons which are transferred to the reading period, much of the mechanics will be avoided.
4. Do not introduce rules for phonics to mentally retarded children. Rules involve generalizations and since mentally retarded children are deficient in the ability to generalize they will have difficulty in learning.

5. Bear in mind phonics must be taught carefully lest it confuse the child.<sup>1</sup>

Hegge employed Remedial Reading Drills with mentally handicapped children who manifested reading disabilities. Exposed to this systematic phonics program, the children progressed from a mean reading grade level of 1.6 to a mean reading grade level of 4.2 in one ten-month period, a gain considered to be above that expected of normal children in the same interval.<sup>2</sup> Kirk also reported favorable results from his own research employing the Remedial Drills with Educable Mentally Handicapped children.<sup>3</sup>

Not all investigators have emphasized a phonics approach however. Storey<sup>4</sup> and Coleman<sup>5</sup> each successfully employed eclectic approaches which focused on word recognition.

Dunn and Capobianco found no significant difference between special class retardates and intellectually normal on sound blending skills and stated that the phonetic approach to the teaching of

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<sup>1</sup>Samuel A. Kirk, Teaching Reading to Slow-Learning Children (Massachusetts: The Riverside Press, 1940), p. 115.

<sup>2</sup>Thorleif G. Hegge, Samuel A. Kirk and Winifred D. Kirk, Remedial Reading Drills (Michigan: George Wahr Publishing Company, 1936), p. 3.

<sup>3</sup>ibid., p. 3

<sup>4</sup>Samuel A. Kirk, "Research in Education," in Mental Retardation, ed. by Harvey A. Stevens and Rick Heber (Chicago: The University of Chicago Press, 1964), p. 75.

<sup>5</sup>Marion U. Coleman, "Remedial Reading for Special Groups," American Journal of Mental Deficiency, XLII (June, 1936), 127.

reading should work equally well for the two groups.<sup>6</sup>

Braem in a study done with a retarded group in a state residential institution using phonic method compared with another group using sight-reading method found that the sight-reading group made three times as many errors and took much longer to read the Gray Oral Reading Paragraph Test as did the phonic taught group.<sup>7</sup>

MacIntyre also used the systematic approach with older retarded children who were significantly below their mental ages in reading achievement. The improvement shown using this method was marked.<sup>8</sup>

A phonetic system devised by Mae Carden is given ardent support. As a result of the application of the phonetic system, the innovator proudly states that those using the Carden system report that no one has failed to learn to read.<sup>9</sup>

An experiment done at Guelph University to teach trainable mentally handicapped to read by means of a programmed reading kit emphasizing phonics as a foundation for reading found that it was essential to introduce fundamental skills involving phonics and that

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<sup>6</sup>Lloyd M. Dunn and Rudolph J. Capobianco, "Mental Retardation," Review of Educational Research, XXX (December, 1959), 455.

<sup>7</sup>Helen R. Braem, "An Experiment in the Methodology of Teaching Reading to Mental Defectives of Moron and Borderline Level," American Association for the Study of the Feebleminded, XXXVI (June, 1930), 96.

<sup>8</sup>E. Mildred MacIntyre, "Teaching of Reading to Mentally Defective Children," American Journal of Mental Deficiency, XLII (June, 1936), 64.

<sup>9</sup>Mark M. Tucker, "Teaching Reading to Mentally Retarded," Digest of the Mentally Retarded, I (March, 1965), 206.

the teaching approach should be of a concrete type and carefully programmed so that the child can move with certainty from step to step.<sup>10</sup>

Systematic phonics, it seems, is as effective for the slow learner as for other children, but it takes the slow learner a little longer to benefit from this approach. Daniels and Diack testing after two years of instruction, concluded that IQ and method success are not significantly related. Generally they found a stronger phonic emphasis (Their phonic-word method) to be better than a weaker phonic emphasis (the English "mixed" methods), for dull as well as bright children.<sup>11</sup>

Before ending this discussion of phonics, of which there is little recent research, it should be observed that there are some normal and some mentally retarded children who are simply unable to acquire a knowledge of reading by the phonics method. It is therefore necessary that other methods be explored and alternate methods of instruction tried.

#### Language Experience Charts and Basal Reader

The language experience chart method seems to be most effective for eliminating the abstract from reading. The teacher is recording in print the child's thoughts as he gives them orally in words, phrases, sentences and paragraphs. While by no means a novel method

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<sup>10</sup>Sylvia Santin, Report of an Experience in the Teaching of Reading to Adolescent Trainable Retarded, Canada, Guelph University, 1971.

<sup>11</sup>Jeanne Chall, Learning to Read: The Great Debate (New York: McGraw-Hill Book Company, 1967), p. 127.

of teaching reading to the retarded, the language experience or unit method deserves discussion due to its widespread use. The premise for this method is, of course, that children remember better that which satisfies a felt need and is learned from experience.<sup>12</sup>

The language experience approach and the basal reader approach have a great deal in common. Each introduces both a sight vocabulary and skill in identification of "new" words. Each provides for the use of an ample variety of reading materials interrelating the sum of the communication skills in and through the reading program, and helps to develop in pupils the ambition to read.

Remington who has utilized the language experience approach with Educable Mentally Retarded, believes that the success of this type of instruction depends on various factors. The work is concerned with the children's interests and the vocabulary comes from their speaking vocabularies. It provides for repetitive drill in diverse forms and stresses the connectives between words. Lastly, it insures the child well-developed vocabulary of sight words.<sup>13</sup>

Boyle studied the effectiveness of different methods of teaching reading to subjects within special classes. Using retarded adolescents, she studied the effects of emphasis on reading and the effects of three different methods of teaching reading--traditional, semiexperience, and experience--on reading programs. She found that

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<sup>12</sup>Patricia A. Cegelka and Walter J. Cegelka, "A Review of Research: Reading and the Educable Mentally Handicapped," Exceptional Children, XXXVII (November, 1970), 190.

<sup>13</sup>Frances A. Remington, "A Unit Method of Teaching Reading to Mentally Retarded Children," The Training School Bulletin, LIII (April, 1956), 40.

emphasis on reading, regardless of teaching method used, significantly increased reading achievement. No significant difference in achievement resulted from the use of the three teaching methods.<sup>14</sup>

A study reported by Jordan conducted over a period of four years used experience charts and basal readers. Eighty-three Educable Mentally Retarded children were used in the study. For the first year, children in the experimental classes were given extensive verbal readiness training with emphasis on auditory and visual skills, concept development, verbal reasoning, vocabulary, comprehension, along with practice in following verbal instructions. Extensive use was made of experience charts. Control children participated in the regular reading program with basal readers and emphasis on sight method.<sup>15</sup>

This study presents evidence that time purposefully used on prereading activities may be well spent with educable retardates and may be related to greater eventual achievement.

The experience chart approach has been widely used by teachers, as stated by Mitchell, but was found to be rejected by older children because it is "first grade work." A modified approach by means of a tape recorder was used which proved more effective with the older children. The modified approach to experience charts was most

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<sup>14</sup>Ruth C. Boyle, "How Can Reading Be Taught to Educable Adolescents Who Have Not Learned to Read?" in Handbook of Mental Deficiency, ed. by Norman R. Ellis (New York: McGraw-Hill Book Company, 1963), p. 682.

<sup>15</sup>Laura Jordan, "Verbal Readiness Training for Slow-Learning Children." Mental Retardation, III (February, 1965), 22.



successful. The feedback from the students was positive and enthusiastic.<sup>16</sup>

LaCoste, using experience charts with her class, declared that they provided an excellent transition from the spoken to the written word. They also train the children to write and spell; the children receive great pleasure doing so.<sup>17</sup>

The teacher who uses the language experience approach only as a readiness technique will begin the transition to basal readers when the child establishes control over the vocabulary of the pre-primer or primer to be presented. This may be determined (1) by testing the pupil's ability to recognize the words in context by asking him to read charts individually, and (2) by preparing a word list from experience charts and asking the pupils to read the words.

Blake and others designed a study to investigate the achievement in basal reading skills by mentally handicapped, intellectually normal and superior pupils taught with the Scott, Foresman New Basic Readers Series at reading instructional levels, 2, 3, 4, and 5. In the majority of skills, the mentally handicapped, normal and superior groups did not differ in rate of acquisition during the seven-month instructional period. For a majority of skills within each group, there was a significant linear trend (indicating improvement in skill

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<sup>16</sup>Marilys Mitchell, "The Experience Chart for Older Children," Teaching Exceptional Children, IV, (Fall, 1971), 28.

<sup>17</sup>Mary B. LaCoste, "Dee Din Dit Ma Tun Weed: A Discussion of Teaching Reading to Young Exceptional Children," Teaching Exceptional Children, II, (Spring, 1970), 142.

achievement from grades 2 to 5) in the mean scores at each of the instructional levels.<sup>18</sup>

Basal reading series which are designed for the regular classroom fail to satisfy the dual requirements for use in a class of educable mentally retarded students, i.e., low reading and high interest levels.

In a study by Koelsch five basal reading series on the 3-1 grade level were selected and the George Spache Readability Formula was applied to determine if there was any difference in the readability of the series. The study demonstrated statistically that the basal reading series examined did not deviate substantially among themselves in readability, but there was a statistically significant deviation in interest categories among the reading series. A low correlation between interests of basal readers and the interests of the mentally retarded pupils reading on that level was demonstrated statistically.<sup>19</sup>

As can be seen from the research the basal reader is an essential component of the reading program for the mentally handicapped. Two major areas of concern are (1) the frequency with which the retarded child is faced with identical series, which he is forced to repeat, and (2) the confined number of series which teachers seem to work with in the classroom. The teacher may have to use three or four

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<sup>18</sup>Kathryn Blake, et al., "Learning of Basal Reading Skills by Mentally Handicapped and Non-Mentally Handicapped Pupils," Final Report, Georgia University of Athens (May, 1967), 11.

<sup>19</sup>George J. Koelsch, III, "Readability and Interests of Five Basal Reading Series with Retarded Students," Exceptional Children, XXXV (February, 1969), 487.

books at the same level if she wants to provide reading experiences which will be consistent with the child's rate of growth.

### Initial Teaching Alphabet

According to G. Orville Johnson, "Slow learners, to a greater degree than normal children, should be provided with an organized and systematic method of word attack." Since the Initial Teaching Alphabet provides a multisensory reading approach, it would appear that it can be utilized with all children--children with primary learning disabilities, retarded children, normal children, etc. Writing, which in i/t/a instruction is started simultaneously with the presentation of the symbol sounds, adds tactile and kinesthetic reinforcement to the traditional auditory-visual methods.<sup>20</sup>

Gardner reported no significant difference in mean scores on word recognition tests on i/t/a between an instructional and a control group.<sup>21</sup>

Kidd and Horn report that they found a six-month gain on the Wide Range Achievement Test for both i/t/a and traditional orthography groups. Children were exposed to reading instruction for an eight month period. No data are presented in regard to the percentage of children making the transition to traditional orthography.<sup>22</sup>

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<sup>20</sup>Byron Ward and Joan Beauchamp, "I/T/A and the Retarded Child," Journal of the Reading Specialist, IV (March, 1965), 50.

<sup>21</sup>Keith Gardner, "The Initial Teaching Alphabet and Remedial Reading Programme," The Australian Journal on the Education of Backward Children (December, 1966), p. 198.

<sup>22</sup>John W. Kidd and C. J. Horn, "i.t.a. with Educable Mentally Retarded," (unpublished Manuscript Special School District of St. Louis County, Missouri, 1967).

An exploratory study of i/t/a was done by Mazurkiewicz with seven retarded students to determine its effectiveness. Students were given reading instruction using i/t/a for forty minutes a day, five days a week. It was begun in October, 1963, and terminated in November, 1964.

In the exploratory study, the following trends appeared:

1. All pupils demonstrated an increased ability to use word attack skills.
2. A sharpening of auditory discrimination and attendant improvement in enunciation was noted in all cases.
3. A significant improvement in word recognition ability was made by all students.
4. Comprehension ability increased as a result of their improved reading skills.
5. All students manifested an increased motivation in the academic area.<sup>23</sup>

In reviewing basically British research on the i/t/a, Williams concluded that the work on this "one symbol-one sound," phonic scheme allows for very cautious optimism as regards its use with retardates. The once dreaded transfer from i/t/a to traditional orthography seems to have been accomplished with unexpected ease thus far. Williams saw one value of i/t/a as a stimulating, new, simplified approach to the teaching of reading.<sup>24</sup>

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<sup>23</sup>Albert J. Mazurkiewicz, Dorothy Dietrich, Joan Beauchamp and Byron Ward, "I/T/A and Learning Disorders," in Learning Disorders, 1, ed. by Jerome Hellmuth (Washington: Special Child Publications, 1965), p. 356.

<sup>24</sup>James J. McCarthy and Richard C. Sheerenberger, "A Decade of Research on the Education of the Mentally Retarded," in Mental Retardation, ed. by Jerome Rothstein (New York: Holt, Rinehart and Winston, Inc., 1971), p. 561.

Brooking, a classroom teacher, stated that by using this approach through an experience chart, she attained heartening success.<sup>25</sup>

In 1963-1964, i/t/a was used in some primary special education classes and was expanded in 1964-1965 to all primary special education classes in Bethlehem, Pennsylvania. The teachers reported that these slow learners were experiencing a renewed interest in learning to read and write. They were no longer discouraged or disinterested. Using i/t/a as the initial teaching medium for teaching reading provided a learning environment which made observable differences:

- in reading achievement
- in independent learning
- in motivation
- in perserverance
- in the ability to observe
- in the ability to write<sup>26</sup>

Studies by Zeitz suggest that the below-average child needs a writing (language-experience) approach to reading, that control of the number of symbols in a word and in the length of words is desirable in the early stages, and that conceptual and experiential controls in material also should be reviewed.<sup>27</sup>

Orman reports the progress of EMR's using the i/t/a for an eight-month period. Daily lessons of 20 minutes or less depending on

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<sup>25</sup>Thelma Brooking, "i/t/a for a Special Class," New York State Education, LIII (June, 1966), 19.

<sup>26</sup>Rebecca W. Stewart, "I.T.A.-After Two Years," Elementary English, XLII (October, 1965), 665.

<sup>27</sup>Frank Zeitz, "i.t.a. and the Below-Average Child," The Reading Teacher, XIX (April, 1966), 517.

the child's mood were indicated. The results showed that the subjects gained confidence and satisfaction in reading and they found i/t/a symbols easier to remember than the traditional alphabet.<sup>28</sup>

Mazurkiewicz notes that when the slowest students (IQ 50-75) in his project group made the transition to the traditional alphabet after nearly two years of i/t/a teaching, they were reading second grade material, an accomplishment he considers remarkable.<sup>29</sup>

Woodcock's three year research and demonstration project revealed that there was no difference in reading success among groups of children using the i/t/a approach and five other approaches to teaching of reading.<sup>30</sup>

Downing made a survey of the opinions of teachers in ESN schools utilizing i/t/a found that i/t/a gives needed help to slow learners who otherwise might become disconcerted by the irregularities of traditional orthography, or are defeated by the feats of memory involved in learning traditional orthography.<sup>31</sup>

Definite conclusions about i/t/a as a means for remedial teaching cannot be drawn yet. However, it does seem reasonable to infer that i/t/a shows promise as an aid to restoring the assurance of

<sup>28</sup>J. Orman, "Introduction to Reading through the Initial Teaching Alphabet," Teaching and Training, IV (1966), 113.

<sup>29</sup>Albert J. Mazurkiewicz, "ITA and TO Reading Achievement When Methodology Is Controlled," The Reading Teacher, XIX (May, 1966), 608.

<sup>30</sup>Samuel A. Kirk and Bleumer B. Weiner, Behavioral Research on Exceptional Children (Washington, D.C.: Council for Exceptional Children, 1963), p. 70.

<sup>31</sup>John Downing, "i.t.a. and Slow Learners: A Reappraisal," Educational Research, XI (June, 1969), 231.

children who have frequently experienced failure, and that the investigation of i/t/a's merits and limitations for remedial reading instruction should be expanded to a more extensive sample of teachers and children.

#### Programmed Instruction and Teaching Machines

Programmed instruction, a new technology of teaching, has recently emerged from findings in the psychological laboratory. This new mode of instruction has been extended to the field of special education, including the area of the mentally retarded.<sup>32</sup>

Characteristics of programmed methods include:

1. student receives individual and extensive prompting
2. the subject matter is presented in small well-organized sequential steps
3. the student gets immediate knowledge of results
4. the student progresses at the rate he prefers; however, he is not permitted to progress beyond the point of comprehension
5. programs are designed specifically for particular group<sup>33</sup>

It has been found that programmed instruction, including use of teaching machines, is significantly more efficient than the conventional method of instruction through the saving of instructional time, and that active response is less important in some learning than was formerly believed. On the other hand, one of the criticisms of programmed materials is that what is taught is only factual bits of information and doesn't help the learner to cope with the social

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<sup>32</sup>Luke Watson, Jr. "Programmed Instruction with the Retarded," *Mental Retardation Abstracts*, 1 (Maryland: U.S. Department of Health, Education and Welfare, 1964), 28.

<sup>33</sup>ibid., p. 28

problems of living.<sup>34</sup>

Stolurow, Peters and Steinberg examined the results of two procedures when the items were overlearned to a level of 12 or 24 consecutive correct responses. On the basis of the discoveries, Stolurow intimated that while the prompting sequence is effective at first, it may, if used too long, prevent the formation of a strong associative connection between the printed word and the response. In the prompting procedure used with the retarded children, the subject is either shown a depiction of the word to be learned or is given an auditory cue before he responds.<sup>35</sup>

Ellson and others who have been working on a project titled "Machine Teaching of Reading to Retarded Children", have developed a workable teaching machine program which has been found to be effective for producing rapid increases in the learning of a reading vocabulary.<sup>36</sup>

Blackman and Holden after comparing the performance of retarded on a support and nonsupport program, found no difference between the two conditions. Two equated groups of educable, non-reading, retarded adolescents were compared in their performance on a support (prompting) and a non-support (confirmation) program designed to teach four words. The words were presented by means of fully automated audio-

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<sup>34</sup>Lawrence M. Stolurow, "Programed Instruction for the Mentally Retarded," Review of Educational Research, XXXIII, (February, 1963), 127.

<sup>35</sup>Frances M. Greene, "Programmed Instruction Techniques," International Review of Research in Mental Retardation, ed. by Norman R. Ellis (New York: Charles C. Thomas Publisher, 1964), p. 211.

<sup>36</sup>Stolurow, op.cit., p. 128



visual apparatus. Both visual and auditory prompts accompanied the material in the support condition. These prompts were gradually diminished from the first to the final frame. Tape instructions told the Subjects in both conditions when to respond. The subject made his response by depressing one of the four buttons, each corresponding to a word projected on the right side of the screen. Appearance of a small green square and progression of the film strip to the next frame signaled that a response was correct. A small red square and the non-advance of strip signaled that a response was incorrect. The authors pointed out that the prompting program involved about twice as much time as the confirmation program and yet did not produce significantly better results.<sup>37</sup>

The value of programmed textbooks for retarded children has been investigated by Woolman and Davy. Woolman developed a special reading program which was then programmed by Davy. They found the retardates taught with these textbooks far excelled in reading achievement to those taught by conventional methods.<sup>38</sup>

Studies conducted by Blackman, East and Hoats disclosed that programmed instruction in arithmetic and phonics via teaching machines produced significant gains in accomplishment; even more significant was the improvement evident in both in and out of school behavior.

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<sup>37</sup>Leonard S. Blackman and Edward A. Holden, Jr. "Support Vs. Non-Support in an Autoinstructional Word Program for Educable Retardates," American Journal of Mental Deficiency, LXVII (January, 1963), 599.

<sup>38</sup>Myron Woolman and Ruth Ann Davy, "Adaptation of Progressive Choice Methods for Teaching Reading to Retarded Children," American Journal of Mental Deficiency, LXVII (1962), 279.

The investigators suggested that programmed instruction with retardates inculcates better general habits of attention and application.<sup>39</sup>

Moore has been utilizing his talking typewriter as a medium of teaching reading to preschool children. He also states that it could provide an equitable learning situation for educable mentally handicapped. He cites case studies in which three educable mentally retarded children benefited from this approach.<sup>40</sup>

Blackman and Capobianco stated that both machine and non-machine groups improved greatly in their reading; no superiority was evidenced for the teaching machine groups. However, they did find that improvement in department was evidenced by the teaching machine group.<sup>41</sup>

Hewett, Mayhew and Rabb reported a one-year experimental program intended to teach a 250 word basic sight vocabulary to twenty-five mentally retarded children. The words were programmed and were presented by a manually operated teaching machine. Preliminary data manifest that the program is successful in bringing nonreading exceptional children up to a first-grade reading level.<sup>42</sup>

Malpass, Hardy, Gilmore and Williams evaluated the usefulness of a semi-automatized multiple choice teaching machine in preference

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<sup>39</sup>Gordon F. Johnson, "Programmed Instruction and the Exceptional Learner," Exceptional Children, XXXIV (February, 1968), 454.

<sup>40</sup>Omar Khayyam Moore, "Autotelic Responsive Environments and Exceptional Children," The Special Child in Century 21 (Washington: Special Child Publications, 1964), p. 124.

<sup>41</sup>Leonard S. Blackman and Rudolph J. Capobianco, "An Evaluation of Programmed Instruction with the Mentally Retarded Utilizing Teaching Machines," American Journal of Mental Deficiency, LXX (September, 1965), 265.

<sup>42</sup>Greene, op.cit., p. 217.

to the fully automated typewriter keyboard teaching machine in teaching word recognition and spelling skills. The results indicated that both automated instruction groups, representing institutional and public school populations, profited and remembered a much larger number of programmed words than did those taught by conventional classroom methods.<sup>43</sup>

The teaching machine appears to offer a number of features which are ideally suited to the teaching of the retarded child. They are ideally suited to repetitive drill, giving the teacher more time to give each child a greater amount of individual attention. They can be arranged so that extraneous stimuli are brought to an absolute minimum; as long as the child remains in the situation, his attention is drawn almost unavoidably to the assignment he is given. The greatest asset of the teaching machines is that they are infinitely patient.<sup>44</sup>

Fine declares that all students need reassurance; those who are retarded need it even more and the machines are very effective with them. Referring to this Fine says:

Machines reduce the gap between the slow and bright student. The United States Office of Education reports: "The tendency is for students with lower ability to achieve more and therefore becomes more like high-ability students in performance."<sup>45</sup>

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<sup>43</sup>Leslie F. Malpass, Miles W. Hardy, Alden S. Gilmore and Charles J. Williams, "Automated Instruction for Retarded Children," American Journal of Mental Deficiency, LXIX (November, 1964), 42.

<sup>44</sup>Halbert B. Robinson and Nancy M. Robinson, The Mentally Retarded Child: A Psychological Approach (New York: McGraw-Hill Book Company, 1965), p. 471.

<sup>45</sup>Dr. Benjamin Fine, Teaching Machines (New York: Sterling Publishing Company, Inc., 1962), p. 168.

Reading instruction machines (Tach-X and Controlled Reader) were found to be more effective than regular classroom instruction in teaching Educable Mentally Retarded adolescents to read faster and with a greater degree of comprehension. The Gates Reading Survey was used as a pre and post-test. Results at the end of the school year found that the subjects' reading had improved from 0.3 to 5.3 (mean of 1.5) grades while the control group's reading improvement varied from -0.1 to +2.4 (mean of 0.9) grades improved. The experimental sample improved in vocabulary, speech and comprehension.<sup>46</sup>

Price, in his study, suggests that automated teaching is a useful complementary approach to teaching the mentally retarded. It was found that the retarded child does adjust to programmed learning and shows as much progress as with conventional teaching methods, and in less time.<sup>47</sup>

A study by Frey and Rainey exhibited that teaching machine materials are suitable for use with mentally subnormal students and that they are highly useful to the student.<sup>48</sup>

Malpass reports on a study in which three hundred words were programmed to be taught by teaching machine or by workbook. Two populations of mentally handicapped were used, sixty-nine from public

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<sup>46</sup>Walter J. Peach and Beverly Lewis, "Automated Reading Instruction for Educable Mentally Retarded Adolescents," Slow Learning Child, XVI (1969), 19.

<sup>47</sup>James E. Price, "Automated Teaching Programs with Mentally Retarded Students," American Journal of Mental Deficiency, LXVIII (July, 1963), 72.

<sup>48</sup>Oliver P. Kolstoe and Roger M. Frey, A High School Work Study Program for Mentally Subnormal Students (Illinois: Southern Illinois University Press, 1965), p. 99.

school and thirty from an institution. One group used the programmed workbook; one was taught by teaching machine; and one by conventional classroom approaches. The study revealed both the experimental groups scored significantly higher than the classroom group on the measures of programmed words learned and on a paragraph reading test. It was also demonstrated that retention remained significantly higher for the public school group than for the institutional group. Another finding was that programmed approach was not effective for teaching spelling and in the majority of cases the scores on the Gray Oral Reading Test were not significantly different among the groups.<sup>49</sup>

Programmed instruction has been utilized for some time with mentally retarded children. It can be applied effectively in many ways with these children. The steady constancy of a teaching machine is reassuring, for these children need something upon which they can rely.<sup>50</sup>

#### Audiovisual

Audio-visual methods and materials are a wonderfully effective substitute for first-hand experience. They have important reinforcement applications...They increase powers of concentration...They focus all the children's attention in one direction...They make learning come alive...They open the doors to areas formerly inaccessible to

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<sup>49</sup>Leslie F. Malpass, "Further Development, Comparison and Evaluation of Programmed Instruction for Retarded Children," Final Report, University of South Florida (August, 1967), 40.

<sup>50</sup>Dr. Ruza Sabol, "Programmed Education of Handicapped Children," Journal of Learning Disabilities, III (November, 1970), 54.

the children.<sup>51</sup>

A study was conducted by Wittich and Fowlkes to discover the relative effectiveness of three methods of integrating films with classroom activities. It also sought to ascertain to what extent intelligence and reading influence the child's ability to gain information from educational sound films. In this study 264 children in grades 4, 5 and 6 were grouped into nine different categories. These children were tested on 100,000 separate responses. Each group was circulated through three experimental conditions three times in the process of viewing films. The investigation was in process for a period of nine months. A revealing phase of the study demonstrated that the manner in which film is presented and made applicable is very significant. It also gives evidence that full anticipation in seeing a film is more conducive to productive learning than in part anticipation.<sup>52</sup>

May, et al found that if questions were interspersed in films, the students learned much more than when they just quietly viewed a movie. The utilization of motivational methods, focusing the student's attention on particular points, also allows learning to take place more readily.<sup>53</sup>

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<sup>51</sup>Katherine C. Cotter, "Audio-visual Education for the Retarded," The Elementary School Journal, (May, 1963), 441.

<sup>52</sup>Edward Goldstein, Selective Audio-Visual Instruction for Mentally Retarded Pupils (Illinois: Charles C. Thomas, 1964), p. 40.

<sup>53</sup>William M. Deidrich, "Use of Video Tape in Teaching Clinical Skills," Volta Review, LXVIII (November, 1966), 647.

An investigation was made to determine if there were any significant differences in the reading ability achieved by educable mentally retarded children using the phonovisual method in addition to a basic reader and a basic reader without a phonovisual component. Results showed that in the control group there was no significant difference in any of the four aspects (Word Recognition, Sentence Reading, Paragraph Comprehension and Spelling). In the experimental group a significant level of difference was found in three of the four phases of the testing program and the level of significance was greater than 1%. It is apparent that teaching reading and spelling to the educable mentally retarded may be improved by the phonovisual method.<sup>54</sup>

In one study 32 children (IQ 45-70) were asked to recall twenty words in four conceptual categories on four consecutive attempts. The media used were a cartridge tape recorder and a slide projector. The results showed that bimodal presentation had a significant effect on recall but not on clustering.<sup>55</sup>

The tape recorder as a means of improving reading was used in a class of slow learners. At the beginning of the school year each child recorded two paragraphs of his reading. At the end of the semester another two paragraphs were added to the recording and again at the end of the year another recording was made. To say children

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<sup>54</sup>Barbara Heckman, "A Comparative Study of Two Groups of Educable Mentally Retarded Children Under Two Different Methods of Reading," Digest of the Mentally Retarded, III (Fall, 1966), 44.

<sup>55</sup>Linda Bilsky and Ross A. Evans, "The Use of the Associative Clustering Technique in the Study of Reading Disability: Effects of List Organization," New York: Columbia University, 1969.

enjoyed listening to their improvement of the first recording is an understatement.<sup>56</sup>

Another recent study was done by Vergason in which he tested the retention of sight vocabulary. In comparing traditional and auto-instructional teaching, via the automatic slide projector, he noted that although significant differences did not occur after one day, visualized learning was definitely favored. Superior retention for words learned by automated procedure was significant at the end of one, two and even fourteen months. He felt this resulted from over-learning and accordingly, that overlearning for the educable retarded would seem to be most efficiently accomplished through audiovisual instruction.<sup>57</sup>

The tachistoscope has been of some help for slow learners in reading, but it is necessary that some vocabulary be known first. This instrument does increase eye span and perception, as well as develop some interest in reading.

The usefulness of paced auditory presentation combined with simultaneous visual presentation of lesson material was examined as a technique of improving reading skills in the educable mentally handicapped.

Results indicated little impact of the experimental procedures on the standardized pre-post-test measure; however, daily comprehension

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<sup>56</sup>Carol C. Otto, "The Tape Recorder as an Aid in Teaching Slow Learners," Wisconsin Journal of Education, XCIX (January, 1967), 22.

<sup>57</sup>Glen A. Vergason, "Retention in Educable Retarded Subjects for Two Methods of Instruction," American Journal of Mental Deficiency, LXX (March, 1966), 688.



measures favored the bimodal presentation modes, particularly the Machine Audiovisual group as contrasted with the Teacher Audiovisual group and a Control group. Some tend favoring slowed presentations was evident. The subjects demonstrated significant retention of instructional material after a one-month interval, and significantly higher performance on a relearning measure than on initial presentations, after a two-month interval.<sup>58</sup>

Research on the effectiveness of audiovisual material with the mentally retarded is very limited. However, some of the research does state that media can be of value in facilitating learning procedures with the retarded.

#### Individualized Instruction

Ideally, any approach to reading instruction should be programmed yet flexible enough to allow for innovation when the child seems to respond negatively to the program. In this process, any or all of the approaches mentioned in the research may be used. Their order and emphasis depends entirely on suitability to the individual. The attention involved in individualization of instruction is both helpful and necessary to the retarded child in learning to read.

The individualized instruction approach has received its greatest impetus from supporters of the programmed instruction method.

In one study the machine-instructed groups performed significantly better on reading and spelling than the traditionally

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<sup>58</sup>Jacques H. Robinson, et al, "Bimodal Educational Inputs to Educable Mentally Retarded Children," Final Report, (Maryland: American Institutes for Research, 1966), 6.

instructed groups. However, the differences were eliminated after the latter group was tutored individually over the same material. Where programed instruction is found to be superior, it appears that individual attention plays a more important role in enhancing achievement than the program used.<sup>59</sup>

Spencer, comparing the effectiveness of an individualized with a basal reading approach, found after 140 days of instruction the individualized reading group performed significantly better than the basal reader group.<sup>60</sup>

In attempting to raise reading level and in using remedial methods for many disabilities it has been found that individual instruction has been more advantageous than group work.

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<sup>59</sup>Samuel Guskin and Howard Spicker, "The Individualized Approach," in Review of Research in Mental Retardation, ed. by Norman R. Ellis (New York: Academic Press, 1968), p. 245.

<sup>60</sup>Doris U. Spencer, "Individualized First Grade Reading Versus a Basal Reader Program in Rural Communities," The Reading Teacher, XIX (May, 1966), 599.

## CHAPTER III

### Conclusions and Summary

Considerable research has been conducted on (1) the level at which mentally retarded children read and (2) what process is most successful in teaching these children to read. The studies on reading reviewed by Kirk<sup>61</sup> and by Cegelka and Cegelka<sup>62</sup> yield some interesting conclusions:

1. Mentally retarded children do not read up to their mental-age-reading-grade expectancy, probably because teachers emphasize their social adjustment rather than their academic achievement, and also because the child who is most retarded educationally is referred to special class.
2. Research on reading methods has not shown the superiority of any one method over others. Some authors found success with the phonic method, some with experience or other methods. Experiments testing the effectiveness of a particular procedure have been conducted on retarded children who were significantly below their mental-age-grade expectancy. These children made rapid progress during the initial stage of training, then tapered off as they approached their mental-age-grade expectancy.<sup>63</sup>

### Summary

The most accurate test of the effectiveness of any reading approach would be the effectiveness of the retarded adult's reading skills. In other words, do his reading skills contribute to his

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<sup>61</sup>Samuel A. Kirk, Educating Exceptional Children (Boston: Houghton Mifflin Company, 1972), p. 203.

<sup>62</sup>Cegelka, op.cit., p. 198.

<sup>63</sup>Ibid., p. 203.

becoming a more functional member of society: this would be the best test of the effectiveness of the approaches described in this paper.

One suitable direction for further research is in matching reading procedures to the individual differences of the pupils in special classes. If the educational goal of providing for individual differences is, in fact, a goal of the special class, it must be decided which of the available reading approaches is best suited to each individual learning profile. It is strongly recommended that future research concentrate on individual, in preference to group, instructional procedures.

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