Fifteen high school students served as volunteer tutors in an individualized reading program for 14 fourth and fifth grade pupils unable to succeed at grade level in reading skills. Assignments were based on the Ginn 100 reading series and Ss were evaluated on word recognition (taught with flashcards) and comprehension. Each student improved in word recognition for each text demonstrating intrasubject as well as intersubject replication of the effects of teen tutoring. In addition, concurrent with introduction of points exchanged for library books of their choice, pupil performances improved for daily comprehension of reading assignments. From September to May, most students advanced 2-3 years in reading with the least advancement 1.7 years and the greatest 3.7 years. (Author/LS)
THE EFFECTS OF UTILIZING TEEN TUTORS
IN A FOURTH AND FIFTH GRADE
INDIVIDUALIZED READING PROGRAM 1, 2

by
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Abstract

The effects of volunteer high school students as tutors in an individualized reading program for pupils eligible for special educational services were investigated. The terminal objective was for each pupil to master reading skills that would enable him to successfully function on his actual grade reading level. To achieve mastery of these skills, enabling objectives were devised in vocabulary acquisition and reading comprehension. Pre- and post-test measures of word recognition were employed to evaluate the effects of the teen tutor procedures. Each student improved in word recognition for each text demonstrating intrasubject as well as intersubject replication of the effects of teen tutoring. In addition, concurrent with introduction of points exchanged for library books of their choice, pupil performances improved for daily comprehension of reading assignments. Finally, the individualized reading program was evaluated in terms of accelerated progress through reading material at grade equivalents of 1.0 through 5.0.

This study was conducted in affiliation with the Ludlow School District and the University of Vermont.
INTRODUCTION

In the fall of the 1971-1972 school year, a regular classroom teacher requested consulting teacher services because it appeared that an entire class of fourteen (14) students was unable to succeed at grade level in reading skills. With the help of the consulting teacher intern (CTI), the teacher assessed each student's reading skills individually. The assessment demonstrated that each student was, indeed, below grade level. Because of the great deficits, it was impossible for the regular classroom teacher to personally give the one-to-one instruction necessary in order to arrange for each student to acquire grade level reading skills. With the help of
the high school guidance counselor, the teacher and the CTI recruited high school tutors to implement an individualized, systematic reading procedure.

A procedure incorporating systematic social reinforcement for correct responses and systematic prompting for incorrect responses was developed for the teen tutors to use during tutoring sessions. This procedure was chosen because of the CTI's knowledge of the success of the procedure as demonstrated by research conducted by Burdett, Knight and McKenzie (1970); Knight (1970); Burdett and Fox (1972; Knight, Hasazi, and McNeil (1971); and Klann and Hesslink (1971). The procedures described in this research were extended to measure not only correct indentification of word cards, but also accuracy on oral reading, accuracy on comprehension questions, accuracy on retention tests and accuracy on oral reading of expected grade level material. In the judgment of the teacher and CTI acquisition of these skills were important for reading success. More important, these skills were required to function successfully in social studies, science and English classes at the student's actual grade levels.

EXPERIMENT I: VOCABULARY ACQUISITION

SUBJECTS AND SETTING

The tutoring sessions were conducted in a rural, Vermont public elementary school. The classroom size and decor was typical of any intermediate grade classroom.

The students receiving services were in the lowest reading group of seven reading groups for students in grades four through six.
Thoir scores on Otis-Lennon IQ tests ranged from 76 to 92. Fifty percent of the students had been retained at least once. Of those not retained, many had been given "social" promotions even though they had not demonstrated mastery of the work. All had previously been in a remedial reading class for three years.

A majority of the students exhibited health problems such as hearing loss, kidney infections, overweight, asthma, etc. Each student in this group had a previous history of poor school attendance and low report card grades. Family backgrounds varied: one parent families, divorced or separated parents, students living with step parents, older married siblings living at home with their children, working mothers, and family involvement with the police.

The tutors were fifteen high school girls in grades nine through twelve. They represented a wide range of academic progress (low average to excellent), personality traits (shy to vivacious), and socio-economic backgrounds (poor to wealthy).

Tutor Selection and Training Procedure

The tutors were selected according to the following criteria: high school students who had free periods between 10:30 A.M. and 11:30 at some time during the week and who had indicated on their guidance card an interest in working with children. These students were contacted to attend a meeting at which the CTI explained the reading program's objectives. Consistency, both in attendance and implementing the procedures, was stressed as a critical factor. Those interested were instructed to sign up for the tutor training sessions.

Four tutor training sessions were conducted by the CTI with the teenage tutors in groups of four or less. For the first session,
the CTI demonstrated the procedure while the tutors observed and followed a step-by-step written outline of the tutoring procedures. The CTI then demonstrated the procedure step-by-step with the tutor's imitating each step. The second session consisted of some tutors implementing the procedure with other tutors playing the student's role. The CTI or aide gave instructional assistance and positive reinforcement such as praise and smiles for correct implementation of procedures. During the third session, tutors who had completed the previous two sessions trained a new tutor in the procedural techniques with reliability checks made by the CTI or CT aide. In the fourth session, the tutors began working with the students.

Occasionally, reliability checks were taken by the CTI or CT aide to reinforce accurate recording and procedures. Several group conferences during the school year were held to review the procedures, discuss any problems that may have arisen, and praise the tutor's excellent work which was demonstrated by each student's progress.

INSTRUCTIONAL OBJECTIVES

The terminal objective was for each student to master reading skills that would enable him to function at his actual grade level. To achieve mastery of these skills, enabling objectives were derived. One enabling objective focused on vocabulary training. Given the words not correctly orally identified in a Ginn 100 reading text and a systematic flashcard procedure, the student will correctly say the word within three seconds for two consecutive days without prompts.
In order to determine what words in each text were not known, an entry level test was developed. This test was composed of all the words in order of appearance that were introduced as new words for each text. The test sessions lasted five minutes. If a text had a long word list, the test was given in sections.

The test was administered in the following manner. The tutor and student each had an identical list of words. The student was told not to be concerned when he did not know a word and was instructed to read down his list. When the student gave a correct response, within three seconds, the tutor recorded a plus (+) by the word on her list. When an incorrect response was given, the tutor recorded a check (✓) or zero (0). When the student did not give any response within three seconds, the tutor said, "Next word, please." or "Next" and recorded the word as incorrect. For each book a percentage of correct responses was calculated by dividing the total number of correct responses by the total number of words in the book, multiplied by 100.

Post-flashcard Procedure.

When the student had learned the words he had missed on the pretest, for a particular book, the word list was again presented. The administration procedures were identical to the pre-flashcard test procedure. A percentage of correct responses was calculated by dividing the total number of correct responses by the total number of words in the book, multiplied by 100.
Flashcard Procedure.

Flashcards were then made for missed words and placed in the student's individualized reading packet with data sheets. The data sheets listed each word in order of appearance in the book. Next to each word was a space to record the number of the learning session the word was introduced and a space to record the number of the learning session the word was learned. The criteria for a learned word was for the student to say the word correctly within three seconds for two consecutive sessions.

Since each student had his own individualized packet, the tutor had all the materials and instructions necessary to work with the student without teacher help. The tutor first recorded on a data sheet the date, session number, and her name. The tutor then presented ten flashcards, one at a time, to the student and recorded the student's responses with a plus (+) for correct responses and a zero (0) for incorrect responses. After going through the flashcards in this manner, the tutors removed any word cards with two consecutive pluses. These learned word cards were placed in a white envelope in the reading packet. The number of learned words and the session number were recorded on the data sheet. (Because the learned words were placed in the envelope, after class was over the consulting teacher Liao or teen-tutors could recheck for accuracy to ensure that each learned word had met the criteria of two consecutive pluses.) The tutor replaced the exact number of learned words with word cards taken from the "new word" stack.

A word game was then played three times. During the game, word cards were presented one at a time. The tutor praised each correct response. When the student gave an incorrect response or no response,
the tutor told the student the word which the student imitated. The tutor then placed the card directly behind the next one for representation. This was repeated until the student said the word unprompted.

Reliability

Reliability on student responses to the pre- and post-flashcard test was obtained by the CTI or CT aide who recorded the student responses to the word list at the same time on an identical test sheet. Agreement was determined by comparing the tutor's recorded responses with the observer's recorded responses. A percentage of agreement was calculated by the number of agreements divided by the total number of responses (agreements and disagreements) multiplied by 100.

For the flashcard procedures, measures on the tutor's performance and student's responses were recorded by the teacher, CTI, or aide. They recorded the word and placed a plus (+) for correct responses, and a zero (0) for incorrect responses. Also recorded were the tutor's and student's responses during the game.

The observer tallied using checks (J) the number of praises and smiles the tutor gave to the student. Measures on the correct implementation of the game procedure were also recorded (e.g. giving prompts and placing card behind for representation.)

RESULTS

In order to demonstrate the effectiveness of the independent variable (the flashcard procedure administered by the tutors) a pre-flashcard test and post-flashcard test was administered to each student. The results may be seen in Figures 1-14.
The differences for scores obtained on pre-tests and post-tests for individual texts for the students ranged from an increase of 12 points to an increase of 48 points. The measures clearly demonstrate that the flashcard procedure was indeed effective in increasing word acquisition for each of the fourteen 4th and 5th grade students.

Each student's pre-flashcard and post-flashcard performances on each completed text demonstrated intra-subject replication of the vocabulary training provided by the teen tutors. By showing that each of the fourteen students improved, inter-subject replication of the vocabulary training program was also demonstrated.

Reliability on the pre- and post-tests was 100%. Reliability on the tutor flashcard procedure ranged between 80-100% agreement. (Disagreement during the flashcard procedure occurred because the tutor and observer disagreed on the three second time criteria.)

DISCUSSION

The implementation of the systematic flashcard procedure enabled each student to acquire word recognition skills. In addition, measures were taken on oral reading accuracy of material involving words learned, accuracy on comprehension questions, accuracy on retention tests and oral reading accuracy of material at expected grade level. This enabled nine of the fourteen students to read at the 90-100% success level material at their actual grade level.
CONSECUTIVE WORD LISTS
PRE FLASHCARD PROCEDURE (□) AND POST FLASHCARD PROCEDURE (■)
PERCENTAGE OF CORRECTLY READ WORDS

CONSECUTIVE WORD LISTS

PRE FLASHCARD PROCEDURE (○) AND POST FLASHCARD PROCEDURE (●)

P5

P6

BEST COPY AVAILABLE
CONSECUTIVE WORD LISTS
PRE FLASHCARD PROCEDURE (•) AND POST FLASHCARD PROCEDURE (□)
CONSECUTIVE WORD LISTS

PRE FLASHCARD PROCEDURE (■) AND POST FLASHCARD PROCEDURE (□)
We Are Neighbors
Around The Corner
Finding New Neighbors
Friend Far And Near

On Cherry Street
We Are Neighbors
Around The Corner

CONSECUTIVE WORD LISTS
PRE FLASHCARD PROCEDURE (■■) AND POST FLASHCARD PROCEDURE (■■■)
EXPERIMENT 1: IMPROVING READING COMPREHENSION

INSTRUCTIONAL OBJECTIVE

The terminal objective was for each student to master reading skills that would enable him to function at his actual reading grade level. To achieve mastery of these skills, one of the enabling objectives was to develop 80-100% accuracy (four out of five questions correct) on comprehension questions on stories silently read from a Ginn text the student was currently reading.

INSTRUCTIONAL MATERIALS

The students were using the Ginn 100 (1964) reading series (pre-primer through Book 32). The teacher had an indexed looseleaf notebook with five comprehension questions and answers for each story for the Ginn 100 Readers (Pre-primer through Book 32). The notebook was compiled by the Consulting Teacher Program. The questions were derived from the Burdett and Fox Reading Procedures from the University of Vermont Special Education Program. The answers were furnished by the Judlow Consulting Teacher Program.

Data sheets were kept in the front of the notebook. Each sheet contained a class list and spaces for the teacher to record the date, the book code and the students' responses to the comprehension questions. The book code contained the number of the book and the story number (e.g., G6-10 represents the tenth story in the sixth Ginn reader.)

TEACHING/LEARNING PROCEDURES

Baseline.

When the student had learned every word for a particular story in the Ginn 100 reading series, he was then asked to read the story. When each student finished reading his story, he came to the classroom
teacher for five comprehension questions. The student's responses to
these questions were recorded by the teacher, a plus (+) for correct
response, a zero (0) if incorrect. The teacher praised a correct
response. When the student responded incorrectly, the teacher im-
mediately gave the correct answer.

Reliability of the teacher's measures was obtained by the CTI. She was stationed within three feet of the teacher and student. As the teacher asked the question, the CTI recorded the question numeral and the student's response to the question. After the session, the CTI compared the student's responses to the answers in the teacher's book. The CTI recorded a + if correct, a 0 if incorrect response. The CTI and teacher compared their recorded responses, question by question. Percentage of agreement was determined by the number of agreements divided by the number of agreements plus disagreements multiplied by 100.

Point System.

Because the comprehension measures for several students demon-
strated that the minimum objective of 80-100% accuracy was not being achieved, a point system was developed.

Students could earn points for number of words learned per day, accuracy on retention tests, and accuracy on comprehension questions. Points were saved to be later exchanged for paper-back library books which each student had previously selected. The teacher gave the points for accuracy on comprehension questions at the completion of each comprehension session.

When points for the number of "learned" words was eliminated, bonus points were introduced for the other skill areas including
accuracy of comprehension questions. For example, student 12 could earn five bonus points each time he achieved 100% accuracy on the comprehension questions.

RESULTS

Reliability of measurement indicated a range of 80-100% agreement with an average of 100%.

The following chart shows the range, average and median of the student's accuracy during comprehension sessions during each condition. (SEE CHART ON FOLLOWING PAGE)

The graphs on the following pages depict each student's daily performance during each condition. The dotted line at 80% indicates the minimum criteria for acceptable comprehension performance.

Student's progress during the different conditions indicated that, concurrently with the introduction of the point system, the range of accuracy performance improved for students 4, 6, 7, 8, 10, 12, 13, and 14. Average performances improved over baseline averages for students 3, 4, 6, 7, 8, 10, 11, 12, and 14. Students 3, 7, 11 and 14 improved their median scores during the implementation of the point system.

With the introduction of bonus points, students 1, 11 and 12 improved only slightly in range, average and median. In addition, variability of performance concurrently decreased during the point system for students 4, 5, 6, 7, 8, 11 and 14 (that is, these students showed better day to day consistency in criterion level performance.)
<table>
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<th>Median</th>
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<td>4.36</td>
<td>4.5</td>
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<td>5</td>
<td>Bonus Points</td>
<td>3-5</td>
<td>3.85</td>
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</tbody>
</table>

* Student met criteria for reading at actual grade level. Therefore, the reading program in the enabling texts was discontinued.
COMPREHENSION SESSIONS
COMPREHENSION SESSIONS
COMPREHENSION SESSIONS
COMPREHENSION SESSIONS
COMPREHENSION SESSIONS
Concurrent with the implementation of the point system (whereby students earned points for the number of "learned" words, accuracy on retention tests, oral reading accuracy probes on actual grade level material and accuracy on comprehension questions) some students improved. If this system were to be implemented again, the following changes would be made. First, points would not be introduced for the entire class. If a student was reaching the minimum objective for a skill during baseline, no point system would be introduced for that skill. Second, for those students who were placed on a point system and daily measures showed no improvements, the point system would be modified in some way (e.g., bonus points). Third, a wider range of items to be exchanged would be offered in order to decrease the probability of satiation on any one item.

THE EFFECTS OF THE TOTAL PROGRAM ON STUDENT PROGRESS

The total reading program implemented by the teen tutors was comprised of correct identification of word cards, accuracy on oral reading, accuracy on comprehension questions, accuracy on retention tests and also, accuracy on oral reading of expected grade level material.

The following is a chart depicting the grade equivalents for each reader in the Ginn 100 reading series:

My Little Red Story Book 1st Pre-Primer
My Little Green Story Book 2nd Pre-Primer
My Little Blue Story Book 3rd Pre-Primer
The Little White House Primer 1.0
<table>
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<th>STUDENT</th>
<th>YEARS IN SCHOOL</th>
<th>BASELINE</th>
<th>PRESENT LEVEL</th>
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<tr>
<td>1</td>
<td>4.9</td>
<td>(SEPT.) 1.0</td>
<td>3.3</td>
</tr>
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</tr>
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<td>3</td>
<td>5.9</td>
<td>(SEPT.) 1.5</td>
<td>5.2</td>
</tr>
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<td>4</td>
<td>6.9</td>
<td>(SEPT.) 1.5</td>
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<td>12</td>
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<td>(SEPT.) 1.5</td>
<td>5.0</td>
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<td>13</td>
<td>4.9</td>
<td>(SEPT.) 2.0</td>
<td>4.4</td>
</tr>
<tr>
<td>14</td>
<td>5.9</td>
<td>(SEPT.) 1.5</td>
<td>3.5</td>
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</table>
On Cherry Street

We Are Neighbors

Around The Corner

Finding New Neighbors

Friends Far and Near

Roads To Everywhere

Adventures Far and Near

Generally, most students advanced 2–3 years in reading. The greatest reading advancements were with p³, p⁴ with 3.7 years reading increase, the least advancement was p¹¹ with 1.7 years increase.

p¹ 2.3 yrs. Reading Advance
p² 2.9 yrs. Reading Advance
p³ 3.7 yrs. Reading Advance
p⁴ 3.7 yrs. Reading Advance
p⁵ 3.6 yrs. Reading Advance
p⁶ 3.1 yrs. Reading Advance
p⁷ 2.6 yrs. Reading Advance
p⁸ 2.6 yrs. Reading Advance
p⁹ 3.2 yrs. Reading Advance
p¹⁰ 3.2 yrs. Reading Advance
p¹¹ 1.7 yrs. Reading Advance
p¹² 3.5 yrs. Reading Advance
p¹³ 2.4 yrs. Reading Advance
p¹⁴ 2.0 yrs. Reading Advance

The graphs on the following pages depict the minimum reading rate. The vertical axis represents the minimum reading skills that should be mastered for each grade. The horizontal axis represents the number of years the student has been in public school. The diagonal solid line represents the minimum rate of skills mastered for each year in school. The diagonal dotted line represents the actual rate of reading skills mastered in previous years. The circles represent the mastery rate using the teen tutor reading program.
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FUNCTIONAL READING PERFORMANCE (90-100% Oral Reading Accuracy and Comprehension Accuracy) by GRADES EX: MATERIAL

BEFORE CT SERVICES  WITH CT SERVICES

YEARS IN SCHOOL

26
FUNCTIONAL READING PERFORMANCE (90-150): Oral Reading Accuracy and Comprehension Accuracy
GRADE LEVEL MATERIAL

YEARS IN SCHOOL

30
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Before CT Services

With CT Services

YEARS IN SCHOOL

32
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FUNCTIONAL READING PERFORMANCE (70-100% Oral Reading Accuracy and Comprehension Accuracy) vs. GRADE LEVEL/INTERVAL

BEFORE CT SERVICES  WITH CT SERVICES

YEARS IN SCHOOL
The teacher had high esteem for the program. Because of the well defined criteria on the daily measures, she knew immediately whether or not a student was progressing satisfactorily. These measures were a great aid when discussing the student's progress with his parents.

The teacher reported that not only did the students improve academically, but their attitude about school and their own academic ability appeared to change from a "negative" or indifferent view to a positive one. This was evident by the student's smiles and eagerness to work in class as well as better attendance and improved report card grades.

Tutors also were enthusiastic. They recruited other high school students to become tutors. Some rearranged their second semester schedule in order to continue being tutors. One tutor presented the reading program in the senior forensic competition and was awarded first prize.

In conclusion, the time spent by the tutors and the CTI in implementing the procedure was worthwhile as evidenced by the improved progress of the students. These procedures were important to the development of resources available to enable school personnel to be accountable for the education of those who demonstrated such extreme educational deficits. The precise measurement procedures allowed the teacher and CTI to monitor many tutors who in turn arranged for the educational advancement of many learners.
REFERENCES


This research was conducted under a fellowship grant from the Bureau for the Education of the Handicapped to the Special Education Program, University of Vermont and Title I, ESEA, award from the U. S. Office of Education to the Vermont State Department of Education. The opinions expressed herein do not necessarily reflect the position or policy of the U. S. Office of Education and no official endorsement should be inferred.

The authors wish to extend sincere appreciation for their help and support to Mr. Walter McCarthy, Principal of the Ludlow Elementary School; Mrs. Betty Martel, Consulting Teacher aide and Mrs. Gerry Turton, volunteer tutor and aide. Special gratitude must be extended to Mr. Morris Schmoll, superintendent of the Rutland-Windsor Supervisory Union for providing an environment where the project could be conducted. We also wish to thank Hugh S. McKenzie, chairman of the Special Education Program of the University of Vermont, for his helpful suggestions and research skills throughout this study.

The teen tutors were: Kathy Arlund, V. J. Brown, Brenda Clark, Kelly Davis, Judi Farrington, Cindy Fields, Meg Graves, Ann Harlow, Deborah Kirkbride, Cheryl Martin, Alex Robbins and Terri Styrhas.

The Ginn Basic Readers, Boston, Massachusetts, Ginn and Company, 1981.
Also, available with this report are the following audio-visual materials:

1) 8 minute 16 mm. Vermont Education T.V. produced film depicting the tutoring program

2) Slides

3) Graphs and charts illustrating
   1) Vocabulary acquisition
   2) Comprehension accuracy
   3) Minimum rate of achieving reading objectives