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ABSTRACT

A study tested a method for developing reading fluency with third-grade Hill Tribe children in a welfare school in Chiang Mai, a city located in northern Thailand. Most of the students were bilingual, speaking their native tongues and Thai, their second language. Only 18.7% of the Hill Tribe population can read Thai, and many students fail to complete school because of difficulties in reading Thai. Consequently, finding improved ways to develop reading fluency with this population is important--one way to increase fluency is through repeated reading. Repeated reading and self-directed behavior were tested with control conditions to determine if these methods would be effective in promoting reading fluency in Thai. Samuels' (1978) unassisted method was used. All the 95 students in the boarding school were tested to select poor readers. Participants were 28 students who met the criteria, and selected for a balance of sex, tribe, and reading skills such as speed, comprehension, and error detection. Students were randomly assigned to one of four treatments. Analysis of variance was computed for each of the variables to ensure that all groups were equal at the experiment's start. Data analysis showed that students in the repeated reading conditions read texts significantly faster than students in the non-repeated reading conditions and were also significantly better at detecting spelling errors in the text than students in the non-repeated reading conditions. Differences were not found between the groups in comprehension. Findings suggest that students acquire automaticity and fluency for the materials practiced during the repeated reading practice. (Contains 4 tables and 24 references.) (NKA)

# Effect of Repeated Reading And Self -Directed Behavior on Reading Skills and Generalization of the Reading Skills of Third-Grade Hill Tribe Students

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1

This study tested a method for developing reading fluency with third-grade Hill Tribe children in a welfare school in Chaing Mai, a city located in northern Thailand. Most of the students were bilingual, speaking their native languages and Thai, which was their second language. Only 18.7 percent of the Hill Tribe population can read Thai (National Statistics Office, 1989). Many Hill Tribe students fail to complete school because of difficulties in reading Thai. Consequently, finding improved ways to develop reading fluency with this population is of great importance. One way to increase fluency is through repeated reading.

Dowhower (1989) claims that repeated reading is a useful instructional tool for a variety of readers such as disabled or remedial readers, beginning readers in regular classrooms, and also for mature adults. The method of repeated reading arises largely from the automaticity theory of LaBerge and Samuels (1974). According to automaticity theory, fluent readers decode text automatically (with little attention or effort), leaving attention free to construct

meaning . Beginning readers, on the other hand, who are not automatic at word recognition, use up so much attention decoding the text that comprehension is difficult. Hill Tribe students, who are learning to read in Thai, which is their second language, and who are not automatic at decoding, have a specially difficult time comprehending what they are reading.

The origin of repeated reading can be traced to Chomsky (1978) and Samuels (1979) who without knowing of each other's work independently developed similar techniques for helping beginning readers. The essence of the technique involves having students read and reread short meaningful passages several times until a satisfactory level of fluency is reached. In the Samuels (1979) method a student reads and rereads short passages until a criterion reading speed of 90 words a minute is reached. A word recognition accuracy criterion is not set because if students believe that they must be 100% accurate in recognition, it inhibits their speed. The students take turns reading the passages to an assistant who records their reading speeds on a graph. When finished reading to the assistant, the student returns to his/her seat and practices reading the selection while the next student reads to the assistant.

Carol Chomsky's (1978) method of assisted repeated reading uses audio tape recordings of the reading passages. Students listen to the tape recording of the text several times before trying to read the text by themselves. In both the Samuels and Chomsky approaches to building reading fluency, the students practice a passage until a satisfactory reading speed is reached.

A number of studies have reported repeated reading significantly improves reading speed, word recognition accuracy (Sindelar, Monda, and O"Shea, 1990;

Rasinski, 1990, Levy, Nicholls, and Kohen, 1993), as well as comprehension (Yaden, 1988; Hannah, 1994). There is even evidence that the gains in reading fluency generalizes to different unpracticed passages (Dowhower, 1989). Counter findings with regard to comprehension have been reported by Conte and Humphreys, 1989; Mathes, 1993; Boyer, 1993).

It has also been found that repeated reading is beneficial to readers of different intellectual abilities and those learning to read in a non-native language. For example, students with learning disabilities have been helped (Selvey, 1990; Gayeski, 1991; Weinstein and Cooke, 1992). For those learning to read a foreign language, the method of repeated reading has proven helpful (Durgunoglu, 1993; Andrianantenaina, 1994).

While the importance of teaching word recognition skills is widely recognized, the need for instruction specifically designed for fluency is not so well accepted. Many teachers seem to be unaware that slow word recognition which requires considerable attention and effort, is a barrier to comprehension (Perfetti, 1985). Shreiber (1980), a linguist, has argued that gains in reading through repeated practice of a passage are due to the improvement in learning how to process morphological and syntactic cues. It seems possible that improvement in reading may be due to several factors working together, the development of automaticity in word recognition as well as learning how to process linguistic variables.

In this study third grade hill tribe children were being taught to read the Thai language, a language which was not their native tongue. Repeated reading and self-directed behavior were tested with control conditions to determine if

these methods would be effective in promoting reading fluency. Samuels (1978) unassisted method was used in this study.

## Research Design and Method

### Participants

There were 95 students in the Chaing Mai Suksasongkraw School in Chaing Mai, a northern province in Thailand. This boarding school serves a group of disadvantaged children from the Hmong, Karen, Lisu, and Lahu Tribes. All the students were tested in order to select poor readers whose reading speed was 45-55 WPM, comprehension scores were between 25-50 percent, and error detection scores were 10-50 percent of misspelled words which were embedded in the stories. From the total, 45 students met the criteria and of these 28 were selected so that there would be a balance of sex, tribe, and reading skills such as speed, comprehension, and error detection. Students were then randomly assigned to one of four treatments. Analysis of variance was computed for each of the variables to ensure that all the groups were approximately equal at the start of the experiment. Since none of the F values reached significance at the start of the study, one can assume that the random assignment to treatments resulted in approximately balanced groups.

### Research Design

A 2 x 2 factorial design was used. Students were randomly assigned to one of four treatments. The four treatments were: (a) repeated reading with self-directed behavior [RR+SDB], (b) repeated reading with teacher-directed behavior [RR+TDB], (c) non-repeated reading with self-directed behavior [NRR+

SDB], (d) non-repeated reading with teacher-directed behavior [NRR+TDB]. This design allowed testing the main effects of repeated reading vs. non-repeated reading, teacher directed vs. self-directed behavior, as well as their interactions. In addition, reading passages which were not practiced were given to all the students in order to test for generalization.

## Reading Material

The material included 27 stories at the third-grade level. Story selection involved several steps. First, 35 stories were selected from well-known books such as "Moo Yahng - The Roasted Pig", "Paw Kah Glaap - The Chaff Merchant". Second, in order to control story diversity, the stories were adjusted for number of words (Each story had about 350 words.), number of single and compound words, and sentence length. All stories were selected to be of interest to the students. Five experienced teachers who taught Hill tribe children reviewed the stories to ensure that they would be suitable and of interest to the students.

From the pool of suitable stories, 20 stories were randomly selected to be used as non-repeated stories, and 5 were randomly chosen to be used as repeated stories. 4 stories were used to establish baseline, and 3 stores were used to test for generalization of the skills. All stories used in this study met the same criteria for text difficulty and interest.

## Apparatus

A stop watch was used by all students in all conditions to record reading time. To determine the accuracy of student self-timing, two teachers recorded 20 students reading a story, and teacher time was compared to student self-timing. The mean difference in recorded time between students and the teachers was only .0045 seconds. This small difference indicated the student recording was accurate and reliable.

## Error Detection

To ensure that students were actually reading and not trying to memorize the text, as they read the text, the students had to cross out misspelled words which were part of the text. These misspellings appeared in all treatment conditions, repeated as well as non-repeated reading. Each story contained 20 misspellings. These errors were randomly inserted to prevent a pattern of misspellings.

## Comprehension

Every version in both the same-story and different-story sets was assessed by five comprehension questions. A question had four choices. Questions varied so as to include questions of fact (literal comprehension), questions of inference, grasp of the main thought, conclusions, and word meanings. 150 Hill tribe students not used in the study were given the comprehension tests to determine their discrimination power. The test items had high discrimination power, r=.40 and moderate difficulty .40-.70.

## Self-Directed Techniques

Self-directed behavior was encouraged through four techniques: (a) self-contract forms, (b) self-recording, (c) self-evaluation, (d) self-reinforcement. Self-contracting consisted of setting goals (Such as speed, error detection, and comprehension.) and the means of achieving them. Self-recording consisted of the student entering reading speed, error detection, and comprehension scores on a chart, thus allowing the student to keep track of progress. Self-evaluation allowed the student to evaluate progress made in reading along a scale such as fair, good, very good, or excellent. A token economy was set up so that the students could reward themselves by getting token reinforcers which could in turn be cashed in for real rewards such as candies, drinks, books, and playthings. In the teacher-directed behavior condition, it was the teacher who performed the above activities for the student.

## Reading Methods

Weeks 1 and 2. For the first two weeks all students were given training in how to cross out misspelled words, do the comprehension tests, use the stop watches and record their times accurately. The directions the children received were, "Read orally as fast as you can, and cross out the misspelled words as you read. After you are finished reading, find the correct answers from the written questions and answer them." Students were observed during training and helped to do the tasks properly. All the materials used during training were similar to what was used in the experiment proper.

Weeks 3-13. Experiment Proper . Treatment sessions were done five days a week, each session lasting 40-60 minutes. In the repeated reading conditions,

each day the students read the same story four times, and took comprehension tests. In the non-repeated reading conditions, each day the students read four different stories, and took comprehension tests.

RR+SDB. The experimenter met with each student individually and reviewed the reading tasks that the student needed to do. They also went over the appropriate behavior for the self-directed activities such as contracting for reading goals. Next, the student received a reading sheet which contained the reading text, and the student went to his or her seat and began to read the text aloud, crossing out the misspelled words and recording the times. The oral reading was tape recorded. When finished, the student handed the reading sheet with the cross out of the misspelled words to the experimenter, and the student received a comprehension test. When the comprehension test was done, the student got feedback on accuracy of error detection, comprehension, and speed, and the student entered the information on reading performance on a graph. The student then did a self-evaluation by choosing one of three levels of satisfaction for reading speed, error detection, and comprehension. Following the first version, the student repeated the process for the second, third, and forth versions of the story.

After the student had finished reading the five same-story sets, he or she read three more new stories which were designed for testing generalization of the skills. The students read each of the new stories only one time, and the experimenter recorded the student's reading times, error detections, and comprehension scores.

RR + TDB For this treatment, the repeated reading method was the same but the directed behavior was different. In the teacher directed behavior condition,

it was the experimenter, not the student, who set the reading goals,. For example, the experimenter decided whether the reading speed goals should be set at 65, 70, 75, or 80 words a minute. And it was the experimenter who did the graphing of the student's performance and there was no student contracts.

Non-Repeated Reading Conditions (NRR+SDB and NRR + TDB)

The student reading activity was the same in these conditions as with the ones described in repeated reading except that the students did not reread the same texts. Instead, they read different stories each time. The amount of time the students spent in actual reading across all conditions was approximately the same. Students in the non-repeated reading conditions also had to detect misspelling errors, and do comprehension tests. In the self- directed behavior conditions it was the student who decided on the reading goals, set up the contract, and did the charting on progress. Conversely, in the teacher directed behavior conditions, it was the experimenter who set the goals and recorded the student's progress on the charts.

## Results

In this study the two main factors were repeated reading and Student Directed Behavior. A 2 x 2 analysis of variance (ANOVA) was used for testing the diffences between two factors.

Means

Shown below are the means for each factor: reading speed, error detection, and comprehension.

**Table 1**

Means of Reading Skills for the RR+SDB and RR+TDB Group (n = 7)

| | Reading Time | | Error Detection | | Comprehension | |
|---|---|---|---|---|---|---|
| Repetition | M | SD | M | SD | M | SD |
| | | | RR-SDB | | | |
| Version 1 | 283.46 | 56.00 | 7.97 | 2.33 | 2.31 | 0.56 |
| Version 2 | 281.89 | 49.50 | 9.20 | 3.39 | 2.54 | 0.63 |
| Version 3 | 272.83 | 50.48 | 11.06 | 3.52 | 2.40 | 0.53 |
| Version 4 | 253.23 | 46.18 | 11.20 | 2.54 | 2.60 | 0.59 |
| | | | RR+TDB | | | |
| Version 1 | 374.29 | 54.78 | 8.31 | 2.83 | 2.43 | 0.71 |
| Version 2 | 339.77 | 47.51 | 9.51 | 2.65 | 2.46 | 0.49 |
| Version 3 | 329.66 | 40.97 | 11.69 | 3.99 | 2.20 | 0.76 |
| Version 4 | 308.46 | 36.89 | 11.57 | 3.54 | 2.69 | 0.64 |

Note. Version 1, 2, 3, and 4 = the first, second, third, and fourth reading, respectively

The 2 x2 ANOVA for speed of reading indicated that there was a significant difference in favor of repeated reading over non-repeated reading (F= 5.285, df=

1/24, p<.05). The directed reading behvior was not significant (F=2.683, 1/24, p>.05 n.s.), nor was the interaction significant (F=2.914, df=1/24, p>.05 n.s.)

**Table 2**

**Mean Reading Times in Repeated and Non-Repeated Reading With Self-Directed and Teacher-Directed Behavior (n = 7)**

| Directed Behavior | Reading Method | | |
|---|---|---|---|
| | Repeated | Non-Repeated | |
| Self-Directed | 253.23 | 319.37 | 286.30 |
| Teacher-Directed | 308.46 | 318.23 | 313.35 |
| | 280.85 | 318.80 | |

Note. Marginal means were added to the table; they were calculated from the cell means. The smaller the score is, the faster the speed.

The ANOVA for spelling errors detected (a task designed to compel students to read the text and not rely on memory for the text) found that there was a significant difference favoring the repeated reading condition over the non-repeated reading condition (F=5.090, df=1/24, p<.05). The difference between self-directed behavior and teacher-directed behavior for error detection was not significant (F=.160, df1/24, p>.05 n.s.), nor was the interaction significant (F=.595, df=1/24, p>.05).

**Table 3**

**Mean Errors Detected in Repeated and Non-Repeated Reading With Self-Directed and Teacher-Directed Behavior (n = 7)**

| Directed Behavior | Reading Method | | |
|---|---|---|---|
| | Repeated | Non-Repeated | |
| Self-Directed | 11.20 | 9.71 | 10.55 |
| Teacher-Directed | 11.59 | 8.54 | 10.07 |
| | 11.40 | 9.13 | |

Note. Marginal means were added to the table; they were calculated from the cell mean. Range of score is 0 - 20.

The ANOVA for comprehension indicated no signigicant difference between repeated and non-repeated reading (F=1.570, df1/24, p>.05 n.s.). The difference in comprehension scores between self-directed and teacher-directed behavior was not significant (F=.009, df1/24, p>.05 n.s.), nor was the interaction effect significant (F=.149, df+1/24, p>.05 n.s.).

**Table 4**

Mean Comprehension Scores in Repeated and Non-Repeated Reading With Self-Directed and Teacher-Directed Behavior (n = 7)

| Directed Behavior | Reading Method | | |
|---|---|---|---|
| | Repeated | Non-Repeated | |
| Self-Directed | 2.60 | 2.34 | 2.47 |
| Teacher-Directed | 2.69 | 2.20 | 2.45 |
| | 2.65 | 2.27 | |

Note. Marginal means were added to the table; they were calculated from the cell means. Range of score is 0 - 5.

### Generalization Effects to New Unpracticed Stories

Comparing the overall repeated reading and the non-repeated reading groups on reading speed, error detection, and comprehension, the differences were not significant. However, the repeated-reading self-directed behavior group showed that there was some generalization of reading times (speed) to the new stories.

## Discussion

Two main factors were tested as a way to increase fluency in word recognition: (a) repeated reading was contrasted with non-repeated reading, and (b) self-directed behavior was contrasted with teacher-directed behavior. The dependent variables used were reading speed (a measure of fluency), error detection of misspelled words in the texts (a technique used to compel students to read words and not memorize the text), and comprehension. The total amount of time devoted to reading and the number of words read was the same for all of the groups.

Data analysis showed that the students in the repeated reading conditions read texts significantly faster than the students in the non-repeated reading conditions. With regard to error detections, students in the repeated reading condition were significantly better at detecting spelling errors in the text than the students in the non-repeated reading conditions. When comparisons between groups were made on comprehension, differences were not found between the repeated and non-repeated reading conditions.

Another analysis involved a comparison of students getting repeated reading combined with self-directed behavior (RR+SDB) with the students who were also getting repeated reading but with teacher directed behavior (RR+TDB). Data analysis showed that as a whole the self-directed students were superior to the teacher directed students, and the improvement was specific to reading speed and error detection, but not comprehension.

Failure to find differences between the groups in comprehension is not surprising. One criticism of repeated reading is that at times some children

wind up trying to memorize the text rather than learning to read the words in the text. In this experimental study, to prevent word calling from memory, the students had to look for spelling errors as they read, and when they located these errors, they had to cross out the misspelled words. This activity forced the students to focus attention on the words in the text. But, there was a trade-off for this error-detection task. The trade-off was that the task interferes with comprehension. Thus, the error detection activity which met an experimental purpose, actually introduced an activity not found in authentic reading, and this error detection task interferes with comprehension. Thus, some of the failure to find positive comprehension effects may have been due to experimental artifact.

Although some researchers have reported that repeated reading does not improve comprehension (Dowhower, 1987; Selvey, 1990; Suter, 1992; Layton, 1994), others have reported comprehension gains (Yaden, 1988; Morrow, 1988; Levy, et. al., 1993). Whether or not a study finds transfer effects to comprehension following repeated reading practice depends on several factors such as the length of time the students spend in repeated reading practice and the number of words carried over from the practice materials to the transfer task materials. It is unreasonable to expect positve comprehension effects when the training session has been short. With regard to the word factor, generally, the greater the number of words shared by the training materials and the comprehension test materials, the greater the transfer effects to comprehension.

What seems to be clear from the many studies done on repeated reading is that the students acquire automaticity and fluency for the materials practiced

during the repeated reading practice (Rasinski, 1990; Wilson, 1992; Sindelar, et. al., 1990; Levy, et. al., 1993.) The fact that the fluency, or automaticity, developed may be limited to the materials practiced during repeated reading is not trivial for several reasons. First, there is the motivating factor resulting from repeated reading in which even poor readers can see, rather quickly, that they can read accurately and with expression, just as the good readers do. Second, there is a carry-over effect in which the words practiced are read better when they are encountered in a new reading passage.

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