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ABSTRACT

The purpose of a project was to develop and test curriculum-based procedures and measures to monitor and assess the reading and writing progress of adults in a basic education program. The most efficient, reliable, and feasible measure of reading performance from beginning reading level through eighth-grade level was the repeated oral reading procedure of 1-minute readings. The most feasible and efficient measure of writing was a fluency procedure of a 3-minute writing sample. Both measures enabled teachers to chart and monitor progress of adults throughout the program. Teachers reported that the measures were useful and easy to use. Students were receptive to the measures as a means of obtaining feedback about their progress. Results suggested that curriculum-based measures may be useful in adult basic education programs because of their feasibility and reliability in monitoring the performance of adults and as a supplement to the standardized measures often used to assess performance of adults. (An instructor's guide to using curriculum-based measures of reading and writing in an adult literacy program is included, along with 11 references and 10 appendices that contain survey forms, coding sheets, data summary sheets, student reading and writing graphs, and writing prompts.) (CML)

USING CURRICULUM BASED MEASURES TO IDENTIFY AND MONITOR PROGRESS IN AN ADULT BASIC EDUCATION PROGRAM

FINAL REPORT

BY

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Institute for Practice and Research in Education

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Finally, we would like to express our appreciation to the students in PAC who worked with us as we developed, modified, and implemented these procedures. They served as our inspiration and our guide.

Abstract

Curriculum based measures and procedures to monitor reading and writing performance were developed and evaluated with adults (reading from beginning reading level through eighth grade level) in an adult basic education program. The most efficient, reliable, and feasible measure of reading performance was the repeated oral reading procedure (1 minute readings). The most feasible and efficient measure of writing was a fluency procedure (3 minute writing sample). Both measures enabled teachers to chart and monitor progress of adults throughout the program. Teachers reported that the oral reading and writing fluency measures were useful and easy to use. Students were also receptive to the measures as a means of obtaining feedback about their progress. Results of this project suggested that curriculum based measures of reading and writing may be useful in an adult basic education program because of their feasibility and reliability in monitoring the performance of adults. They may also serve as a supplement to the standardized measures often used to assess performance of adults.

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Chapter I

Introduction

The purpose of this project funded by the Division of Adult Basic Education (310 of the Adult Education Act) was to develop and test curriculum based procedures and measures to monitor and assess the reading and writing progress of adults in a basic education program. Although there has been a surge of interest in programs for improving the literacy skills of adults in the United States (Harmon, 1985), there are few reliable and valid assessment instruments with which to plan instruction and monitor the quality and impact of these adult literacy programs. The norm-referenced tests that are used to document overall progress (Webster, 1986) are limited for two reasons. First, they tend not to be useful for making instructional decisions. Second, since they generally do not relate to the content of the adult literacy curriculum, they are not sensitive to progress made by adult students in whort duration adult education programs. In a survey conducted by the Adult Learning Division of the College Reading Association (Richardson, 1985), improvement of assessment procedures was listed as one of the crucial needs; respondents criticized the use of inappropriate standardized tests and acecdotal records for measuring program success. At the Roundtable Conference held by the Institute for the Study of Adult Literacy at the Pennsylvania State University, one specific need identified was that "a field-tested, adult-oriented diagnostic tool be developed to assess more adequately the adult population" (Proceedings, 1986).

Curriculum based measures are short tasks administered at frequent intervals to permit instructors to determine the effectiveness of their teaching and to make necessary modifications in instruction. Results from research with younger students indicated that the best measure of reading for

use in a curriculum based system was number of words read correctly by a pupil in 1 minute from the curricular materials used in the classroom (Deno, Mirkin & Chiang, 1982; Deno, Marston, Mirkin, Lowry, et al., 1982; Fuchs & Deno, 1981). Current research (Deno, Marston & Mirkin, 1982) also supports the validity of short (3 minute), frequent writing samples. These and other measures were investigated in this project.

The project was implemented at the University of Pittsburgh in an adult basic education program, Pittsburgh Adult Competency Program (PAC), Institute for Practice and Research in Education, September 1988 through June 1989. PAC, a ten-week literacy program funded by the City of Pittsburgh for unemployed adults reading below the eighth grade reading level, was held on campus in university classrooms. The PAC staff consisted of five instructors, one of whom served as supervisor in addition to assuming full instructional responsibilities. Four were language arts teachers and one, a math teacher. The program also supported one full-time job developer. This individual helped with training related to job awareness. However, his major responsibility was to obtain job placements or additional training opportunities for those who completed PAC.

The program had three consecutive cycles in a year (nine weeks of instruction and one week of job search). Students met for a three-hour period each day, Monday through Friday, for a total of forty-five, three hour sessions. For four days a week, students followed a systematic schedule which included instruction in reading, writing, matn, and job readiness. One day each week, students had the opportunity to hear speakers from various companies, to visit places of potential employment, or to work in special areas of need or interest (for more information about PAC program, see Bean &

Johnson, 1987).

The results of this project contained in this report should be useful to adult educators interested in curriculum based measures as a means of monitoring reading and writing progress as well as to those responsible for developing and managing adult basic education programs. The results should be helpful also to educators interested in measurement issues related to curriculum based procedures.

Members of the Research Team were: Rita M. Bean, Director, Adelle Byra, Project Coordinator, Roland Good, Suzanne Lane, and Rhonda Johnson. The PAC teachers were: Louise Hammond, Rhonda Johnson, Arzella McCauley, Martha Weiss, Kent Weaver, and the job developer was Arthur Bailey.

Part I of this report contains five chapters, an introductory chapter and three chapters (II, III, and IV), in which procedures and results pertaining to each of the objectives of the project are described. Chapter V contains the findings, conclusions, and recommendations for the entire project. Part II is an Instructor's Guide that provides specific information about how to develop and use curriculum based procedures in an adult literacy program.

This report has been filed with Department of Education, Bureau of Vocational and Adult Education, Division of Adult Basic Education, 333 Market Street, Harrisburg, PA 17126-0333, and with AdvancE, Pennsylvania Department of Education Resource Center.

Chapter II

Development and Testing of Curriculum Based Procedures

(Phase 1)

The major objective of Phase I was to develop and test, informally, curriculum based measures and procedures with students enrolled in Cycle I. There were 22 students involved in Cycle I. Eighteen of the students were females and four were males. The beginning reading level group (Group BR) consisted of five students, four females and one male. The low intermediate level group (Group LI) consisted of five females. The high intermediate level group (Group HI) contained five females and one male. The middle to high school reading group (Group MH) consisted of four females and two males (see Appendix A).

In order to develop curriculum based measures and procedures, it was necessary to analyze the PAC program curriculum. The purpose of evaluating the curriculum was to identify the general areas in which it would be possible to develop curriculum based assessments or tasks and the kinds of materials from which to develop these tasks.

The PAC curriculum was analyzed by looking at lesson plans from previous cycles. A master coding sheet was developed in order to make sense of the information gleaned from the lesson plans. A coding sheet was completed for each of the four groups. On each sheet, the goals for the group and the materials and methods used with the students were identified and listed. The goals of the curriculum fell into the following general categories: 1) word analysis, 2) fluency, 3) vocabulary, 4) comprehension, and 5) composition. The general areas emphasized in each cycle were determined by the needs of the students in each particular group. The most frequently used materials were

workbook exercises and teacher-developed worksheets, which were usually used to reinforce a lesson taught by the teacher. The most used methods were direct instruction with guided practice, discussion, and independent or small group practice.

Procedures and Results

After analysis of the curriculum, several procedures for CBM's in reading and writing were implemented. The description of these procedures and a summary of the results of implementation follow. It should be reiterated that the emphasis in Cycle I was placed on developing and refining the CBM measures and procedures and not on interpreting the data gathered. Some validity and reliability data, however, are reported.

Reading

Initially, three types of reading procedures were implemented in order to evaluate the efficiency and effectiveness of the procedures themselves and to determine which of the procedures would be implemented during the next cycle.

The data from each of the four oral readings administered during this cycle were: a) Number of Words Read Correctly in one minute (CWPM), which was the score that was charted on each student's graph; b) Number of Words Read (WPM); c) Accuracy Percentage (which was the CWPM total divided by the number of words read); d) Gain Score. An average gain score per reading was calculated by dividing the CWPM gain score by the number of opportunities to "gain" (in this cycle there were three opportunities to gain). Miscue information was also recorded. Self-corrections, substitutions, partial and whole word insertions, and omissions were coded.

Following are descriptions of the four procedures used during Cycle I.

Repeated Readings with Instruction. The first procedure, used with the beginning reading group (Group BR), was one that involved four repeated readings of the same narrative selection with an instructional component between the first and second reading. The instruction related directly to the selection itself and the teacher of this group determined what was to be taught. There was no instruction after the second reading. The selection that the five students read was titled, "The Wright Brothers", which, according to the Fry Readability Graph and the SMOG formula, was a fourth grade level narrative.

The results below reflected the mean number of words read correctly in one minute for each of the readings by those students in Group BR and the number of words "gained" over the course of the readings. Also reported are the group medians for each reading.

Table 1 Repeated Readings with Instruction Approach: Group BR

Reading	Group Mean	Gain per Reading (CWPM) (based on group mean)	Group Median
Week 1	67 CWPM		79 CWPM
Week 2	96 CWPM	+29 Words	91 CWPM
Week 3	102 CWPM	+ 6 Words	110 CWPM
Week 4	112 CWPM	+10 Words	126 CWPM

The largest gain in CWPM resulted after the instructional treatment, which was done between the first and second reading . There was also continued gain after each reading.

Repeated Readings with Practice. The second procedure involved the five students in Group LI. These students read a fourth grade level selection,

"Rescue", once each week for four consecutive weeks. Each student in this group was given a copy of the selection each week so that they could practice at their own convenience. They were also asked to report the number of practice trials.

The results reflected the mean number of words read correctly in one minute for each of the readings by those students in Group LI, the number of words "gained" over the course of the readings, and the mean number of practice trials reported by those students in this group. Also reported are the group medians for each reading.

Table 2 Repeated Readings with Practice Approach: Group LI

Reading	Group Mean	Gain per Reading (CWPM) (based on mean)	Practices (x)	Group Median
Week 1	85 CWPM			82 CWPM
Week 2	96 CWPM	11 Words	4.25 Trials	90 CWPM
Week 3	109 CWPM	13 Words	5.00 Trials	114 CWPM
Week 4	134 CWPM	25 Words	5.50 Trials	120 CWPM

As the number of practice trials increased, so did the mean number of CWPM. Other factors such as familiarity with the selection and instruction in the program most likely had a positive impact on these results, also.

Four Different Readings. This third procedure was used with both the high intermediate level (Group HI) and the middle to high school level (Group MH) reading groups. These groups read four different narrative texts once each week for four consecutive weeks. The only difference between the groups was the readability level of the texts read. Those students in Group HI read materials which, according to the Fry and SMOG formulae, were between grades

5.5 and 6.5. Group MH students read selections which ranged between the 6.5 and 7.5 grade levels.

The results below reflected the mean number of words read correctly by those students in Groups HI and MH. The mean and the mean number of words "gained" are reported by weekly readings.

Table 3 Different Readings Approach: Groups HI and MH

		Group HI	
Reading	Group Mean	Gain per Reading (CWPM) (based on mean)	Group Median
Week 1	117 CWPM		105 CWPM
Week 2	118 CWPM	1 Word	109 CWPM
Week 3	128 CWPM	10 Words	120 CWPM
Week 4	132 CWPM	4 Words	120 CWPM
		Group MH	
Reading	Croup Mean	Gain per Reading (CWPM) (based on mean)	Group Median
Week 1	157 CWPM		172 CWPM
Week 2*	222 CWPM	65 Words	210 CWPM
Week 3	172 CWPM	-50 Words	131 CWPM
Week 4	124 CWPM	-48 Words	110 CWPM

*This selection was mistimed, therefore, the results reported for this second reading are not valid. Upon closer examination of the data for Group MH, each student's correct words per minute over the course of all four readings decreased. Several factors could have affected these results. For example, the selections themselves could have had varied sentence structures

or difficult vocabulary that would not have been accounted for in a readability formula, thereby increasing difficulty and reducing fluency.

Writing

The students were given a writing prompt and three minutes in which to respond. Prior to writing, each teacher read the prompt aloud to their group. After the administration of the first writing prompt, it was apparent that a "think" time prior to the writing had to be provided. As a result, the students were given one minute to organize their thoughts. Also, they were permitted to make points in note form during the one minute "think" period, if they desired.

The prompts were designed to evoke either an "emotional" or "unemotional" response from the students. There were six prompts in total, three emotional and three unemotional. This first set of prompts was not counterbalanced across groups.

In addition to writing, the students completed an evaluation form consisting of approximately five questions which related to each specific writing task. For example, one of the questions asked whether or not the topic was an easy or difficult one for the student to write about.

A fluency count, which was the number of words written in three minutes, was calculated for each of the six writing prompts. Students had individual graphs so that they could monitor their progress from writing to writing.

The mean for all students for the three unemotional prompts was 43 words and the mean for all students for the three emotional prompts was 43.3 words. No difference between the means of the two different types of prompts was observed, nor much difference in the individual scores of students across prompts. Therefore, when the prompts for Cycle II were developed, the issue

of whether they would evoke a more emotional or unemotional response from the students was not addressed.

The following results reflected the means by groups across the six prompts, emotional and unemotional combined. The beginning reading group (Group BR) mean was 26.3 words written per prompt. The low intermediate group (Group LI) mean was 36.5 words written per prompt. The high intermediate (Group HI) mean was 51.2 words per prompt. And, the mean for the middle to high school reading group (Group MH) was 57.8 words per prompt. The mean number of words written per prompt was greater for students in the better reading groups.

Reliability and Validity of the Measures

Reading

Validity. The students' scaled scores on the reading comprehension subtest, California Achievement Test (CAT), Level 18, administered prior to program entry, were correlated with scores (CWPM) on the first curriculum based measures (CBM) reading. The resulting coefficient was .57.

The students' scaled scores on the CAT, administered at the conclusion of the program, were correlated with their totals on the last CBM reading. The resulting coefficient was .62.

Writing

Reliability. Two raters were responsible for counting the number of words written (fluency) by each student on each writing prompt. An interrater reliability coefficient was calculated for each of the six prompts. The resulting coefficient for each prompt was .99.

Evaluation

Established in Cycle I, with the input of the PAC Program teachers and the research team members, were step-by-step procedures for both reading and

writing.

Reading

The teachers completed a reading and writing task evaluation form on two occasions during Cycle I and the following information was the result of the reading evaluations. The results of the writing evaluation follow in the next section.

The teachers indicated that the procedures were outlined clearly and that they were easy to follow. This resulted after much teacher input and suggestions as to modifications of the administration procedures.

The reading task (showing the students their graph and the reading itself) took an average of three minutes per student.

The student response to the reading task, which was an average based on teacher perception of student response, was rated as "GOOD".

Three of the four teachers indicated that administration of the CBM's took about the amount of time that they expected it to take. One teacher indicated that the administration of the task took more time than expected.

Writing

The following information was the result of the task evaluation forms completed by the teachers. All four teachers indicated that the writing prompts were outlined clearly and they were easy to follow.

The writing task was group administered and it took an average of seven minutes and thirty seconds to complete the task, which included handing out and reading the prompt, the one minute "think" time and three minute writing time, and the time for the students to complete the task evaluation form.

All of the teachers indicated that the administration of this task took about the time that they expected it to take. Like the response to the

reading task, teacher perception of student response to the writing task was rated as "GOOD".

Modifications

Reading

One of the major changes for Cycle II was the effort to relate the curriculum based measures (CBM's) more closely to the PAC curriculum. It was felt that the readings, when not actually used in the curriculum, were just isolated events. The teachers felt that the students needed the opportunity to read the entire selection so that they could experience some task closure. In Cycle I, the reading tasks were designed so that no student would be able to read the entire narrative selection in one minute. In Cycle II, in order for the tasks to reflect the curriculum, each teacher was asked to choose the selections to be read by her group. The main criteria for choosing materials were that each passage had to be at the appropriate reading level for the group (teacher judgment about readability) and each would be used for instruction after CBM administration.

It was also decided to have all groups use different reading texts each week. First, this would make this research more consistent with that of other researchers (Deno, 1985). Second, student growth across a variety of texts could not be monitored.

It was recommended that in addition to using narrative materials, expository materials should also be used in Cycle II. The main reason for this recommendation was that adults, in their day-to-day life, would typically encounter materials that would be more expository than narrative in nature.

In order to make final procedural decisions and decisions about the types of measures to be used in the final phase of the project, it was decided to

collect data using two other measures. To be included in Cycle II, then, was a retelling (comprehension measure) and a vocabulary measure for both the expository and narrative texts.

In order to have students give an oral retelling and define identified words, they now had to read short narrative and expository selections in their entirety as opposed to reading for only one minute, which was done in Cycle I. The correct words per minute (CWPM) and words per minute (WPM) were then calculated after the complete texts had been read.

Finally, it was decided to have the students read the narrative texts orally and the expository texts silently. The decision to have the students read the narrative selections orally was based on the teachers' need to collect miscue information for instructional purposes. Expository text materials were read silently because the in their day-to-day living, students would most likely read these texts silently.

Writing

The PAC teachers recommended that new writing prompts be developed because they felt that the prompts should relate more closely to the students' experiences or needs. For example, it was suggested that the prompts could reflect more job-related and everyday life issues.

The second important recommendation, which was instituted after the first writing prompt was administered, was to add a one minute "think" time prior to having the students write. Another suggestion, made by the teachers, was to simplify the writing prompts. They felt that the students were overwhelmed by the amount of information they were required to provide in their responses.

Chapter III

Evaluation and Selection of Curriculum Based Procedures

(Phase 2)

The objective of Phase 2 was twofold: first, to evaluate the curriculum based measures and procedures that were modified as a result of the Cycle I findings, and second, to select those that were found to be efficient, sensitive, reliable and valid for implementation during the next phase, Phase 3.

Phase 2 of the project coincided with Cycle II of the PAC Program. Initially, nineteen students were enrolled in Cycle II; however, due to attrition, sixteen students were included in the Cycle II sample. Of the sixteen students, nine were females and seven were males.

The beginning reading level group (Group BR) consisted of four students, two females and two males. One of the males in this group was a nonreader. The low intermediate group (Group LI) consisted of four students, three females and one male. The high intermediate group (Group HI) contained five students, three females and two males. The middle to high school reading group (Group MH) consisted of three students, one female and two males (see Appendix A).

Procedures

Reading

All four groups read different texts each week. The texts that the students read were selected by the teachers for their particular group. The criteria for choosing the materials were that each selection had to be at the appropriate reading level for the group (teacher judgment about readability) and each text would be used for instruction after the timed readings.

The reading procedures used were the same for all students, with the exception of those for a nonreader. (Some of the administration procedures were modified in order to accommodate this student.)

During the first four weeks of Phase II, the following procedures were implemented. An entire narrative selection was read orally and the time it took to read the selection and miscue information were recorded. In the case of the nonreador, the teacher read the entire selection to the student. The types of miscues coded were substitutions, partial and whole word insertions and omissions. Self-corrections were also coded. The CWPM and WPM totals were calculated later from the total reading time.

After a selection had been read, students were asked to provide an oral retelling of all that they could remember about the selection. The nonreader was also asked to supply an oral retelling. The teacher numbered the order of the recall on the protocol sheet that was developed specifically for each selection. The retells were rated on a four point scale in each of the following areas: organization, completeness and elaboration.

Once the student had completed the oral retelling, the teacher administered the vocabulary measure. Initially, six words were tested, three of which were critical to the selection content and three that the teacher felt that the students in her group should already know. The teacher pointed to the word in the student text and then pronounced it. The teacher then asked the student to tell her the meaning of the highlighted word. The students were permitted to reread the sentence that contained the word in question, if they chose. The teacher recorded each definition verbatim. The students' definitions were then compared with a dictionary definition and rated on a three point scale.

The only difference between the administration of the narrative and

expository selections was that the students read the expository texts silently. The procedures for the oral retelling and vocabulary activities were the same as those used with the narrative texts. Unlike the narrative texts, where CWPM and WPM were calculated, only a WPM total was calculated. Also, because the texts were read silently, miscue information could not be recorded.

After four weeks, it was apparent that the procedures described above were time-consuming and non-productive. The following modifications were then instituted.

First, an assistant was secured to help administer the curriculum based measures so that teachers would have more time for instructional purposes. Second, instead of having students continue to read entire selections, they were required to read each of the texts (narrative and expository) for one minute each. This helped to reduce the administration time considerably. Third, students were now required to read both the narrative and expository texts aloud. Initially, only the narrative texts were read orally. The teachers preferred to have the students read both text types aloud so that they could refer to the miscue information for planning. Fourth, the retell and vocabulary activities were discontinued. In addition to being time-consuming, Deno (personal communication, 1987) indicated that retell and vocabulary measures correlated highly with performance on one minute oral readings. Finally, an aim line, which was increased by three correct words per minute (CWPM) each week, was added to each student's graph. An aim line, or goal, was added for two purposes: one, for student motivational purposes and, two, to enable the teacher to monitor performance in relation to an expected goal.

Writing

The writing procedures followed during this phase were the same as those used during Phase 1. Prior to writing, the teacher read the prompt aloud to the group and then provided the one minute "think" time. Then, the students were given three minutes in which to respond to the prompt. After writing, the students completed a task evaluation form.

A fluency count was calculated for each of the seven prompts and the number of words written were graphed on each student's progress chart. The six prompts were counterbalanced across groups.

Results

Student Achievement

Reading

The results for the students in Group BR are reported first, with the results of those in Groups LI, HI, and MH following. A graphic summary of the performance of students in each group is also included (see Figures 1, 2, 3, and 4). Individual students' oral reading results are discussed in reference to their baseline scores, the first value plotted on the graph. The dotted line across each graph represents the group's mean on each reading. Following the discussion about each student's results is a table that reflects students' baseline scores, their correct words per minute (CWPM) on the last reading, their overall correct words per minute (CWPM) gain score (the difference between the first and last reading), and a mean weekly gain score. This mean gain score reflected the average CWPM gain per week and was derived by dividing the overall gain score by the number of readings (4). (This is identical to summing each consecutive weekly gain and dividing by the number of readings).

In discussing the scores, if a reading score was within eight correct words per minute of the baseline value, either above or below it, then it was considered to be slightly above or below the baseline. If a reading score was between nine and seventeen correct words per minute of the baseline, either above or below it, then the score was referred to as considerably above or below the baseline. Eighteen or more words above or below the baseline value for any given student was referred to as substantially above or below the baseline. These criteria, although subjective, provided for consistency in discussing each individual's results.

Group BR

Student 2321 had two oral reading scores above and two below his baseline value of 39 correct words per minute (CWPM) (see Figure 1). Both scores above the baseline were slightly above it and both scores below the baseline were slightly below it.

Student 2421 oral reading scores were slightly above her baseline value of 98 correct words per minute (CWPM).

Student 2521 in Group BR had three scores above and one score below her baseline value of 94 CWPM. Two reading scores were slightly above and one was considerably above the baseline value. The score below the baseline was slightly below it.

In summary, 75% of Group BR's oral reading scores were above their individual baseline values and 25% of the scores were below the baseline value.

Table 4 presents the results for students in Group BR.

Table 4 Student reading data: Group BR

Student	Baseline CWPM	Last Reading CWPM	Overall Gain/Loss in CWPM	Weekly Mean Gain per reading in CWPM
2321	39	28	-11	-2.8
2421	98	109	+11	+2.8
2521	94	111	+17	+4.3
Group Mean	77.0	82.7	5.7	+1.4
Median	94	109	+11.0	+2.8
Range	39 to 94	28 to 111	-11 to +17	-2.8 to +4.3

The group mean baseline value was 77.0 and the mean of the last reading was 82.7 (see Table 4). Two students in Group BR made gains in the number of words read correctly in one minute from the first to the last reading, with one student showing a considerable loss. The overall mean gain per student was 5.7 CWPM. The CWPM mean gain per weekly reading was 1.42.

Group LI

Students 2722, 2822, and 2922 had oral reading scores above their individual baseline means (see Figure 2).

Student 2722 had three scores substantially above and one score slightly below her baseline value of 89 correct words per minute (CWPM).

Student 2822 had three scores substantially above her baseline value of 143 CWPM. The one score below the baseline was substantially below it.

Of the three scores above student 2922's baseline value of 76 CWPM, one score was slightly above, one was considerably above, and another was

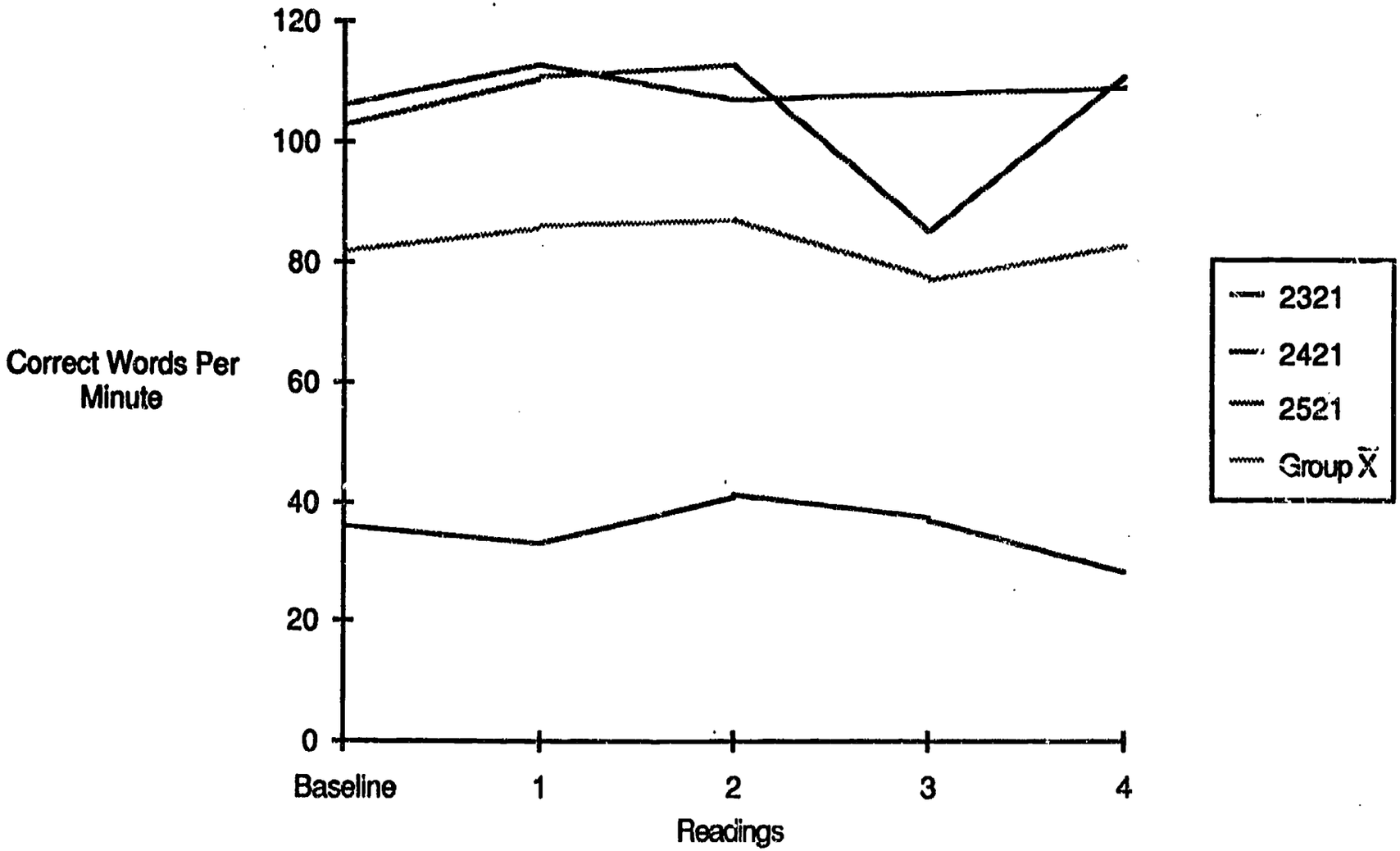


Figure 1. Reading: Individual students' correct words per minute totals on each reading (Cycle II; Group BR).

substantially above it.

Student 3022 oral reading scores were all above his baseline value of 74 correct words per minute (CWPM).

In summary, 81% of Group LI's oral reading scores were above their individual baseline values and 19% of the scores were below them.

Table 5 summarizes the results of students in Group LI.

Table 5 Student reading data: Group LI

Student	Baseline CWPM	Last Reading CWPM	Overall Gain/Loss in CWPM	Weekly Mean Gain per Reading in CWPM
2722	89	104	+15	+3.8
2822	143	151	+ 8	+2.0
2922	76	63	-13	-3.3
3022	74	95	+21	+5.3
Group Mean	95.5	103.25	+7.8	+2.0
Median	79.5	99.5	+9.5	+2.5
Range	74 to 143	63 to 151	-13 to +21	-3.3 to +5.3

The group baseline mean was 95.5. The mean of the last CBM reading for this group was 103.25. Three of four students in Group LI made gains in the number of words read correctly in one minute from the first to the last reading. One student showed a considerable loss. The overall mean gain for each student was 7.75 CWPM. The resulting mean gain per weekly reading was 1.94 CWPM for each student.

Group HI

Student 3123 had two oral reading scores above and two below his baseline

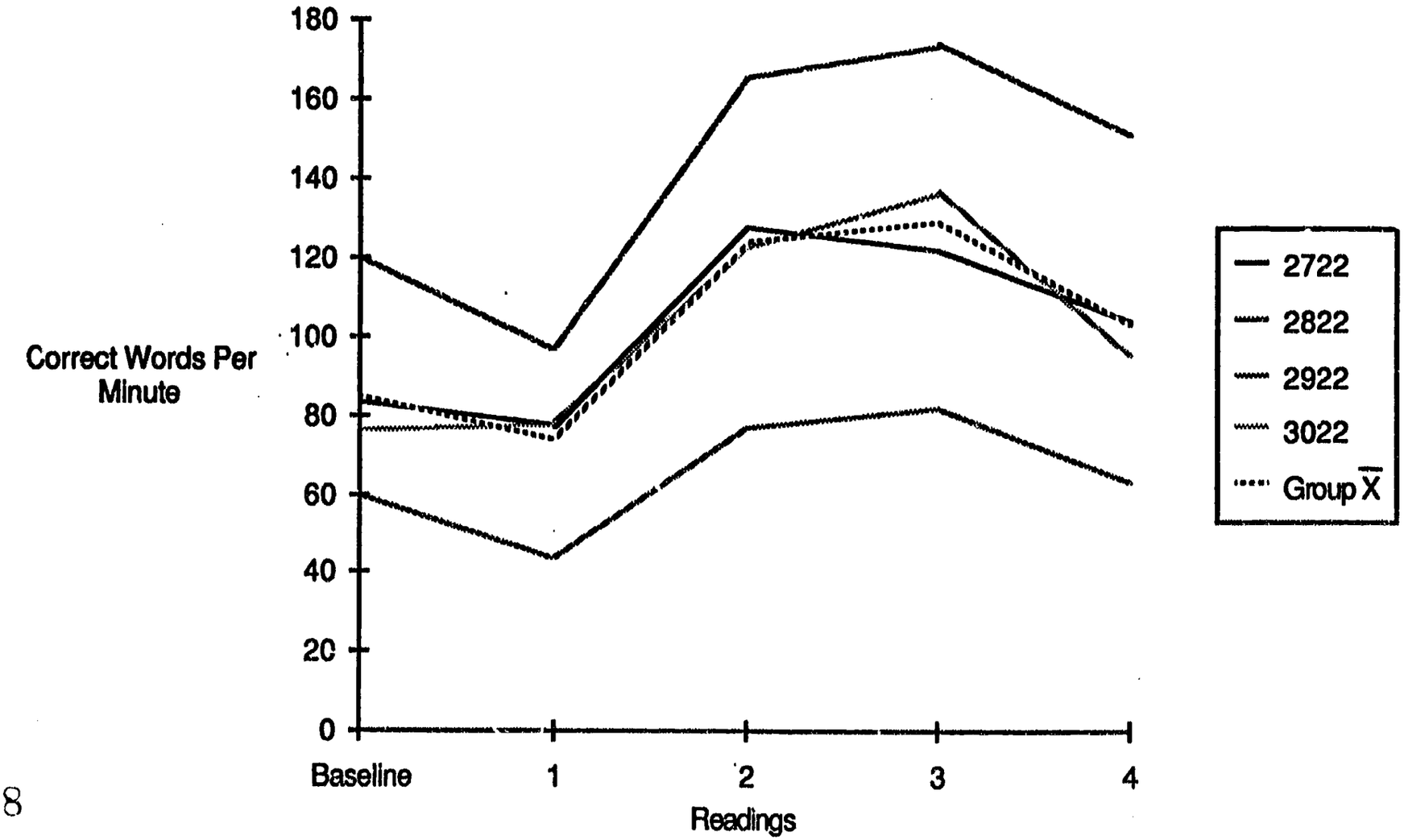


Figure 2. Reading: Individual students' correct words per minute totals on each reading (Cycle II; Group LI).

value of 95 correct words per minute (see Figure 3.) The two scores above the baseline were substantially above it and the one score below the baseline value was slightly below and the other was considerably below it.

Students 3223, and 3323 had three reading scores above and one below their baseline values. Student 3223's baseline value was 86 correct words per minute and the student 3323 baseline value was 135 correct words per minute. Both students had two scores substantially above the baseline and one slightly above it. The score below the baseline for student 3223 was slightly below it and the score for student 3323 was considerably below it.

Student 3423, whose baseline value was 158 correct words per minute, had two scores above and two scores below her baseline value. The two scores above the baseline value were substantially above it, with the two scores below the baseline slightly and considerably below it.

Student 3523 in Group HI had three reading scores above and one below his baseline value of 101 correct words per minute. Of the three scores above the baseline, one was considerably above and two were substantially above it. The only score below the baseline was in the considerably below range.

In summary, 65% of Group HI's oral reading scores were above their individual baseline values and the remaining 35% of the scores were below baselines.

Table 6 summarizes the results of students in Group HI.

Table 6 Student reading data: Group HI

Student	Baseline CWPM	Last Reading CWPM	Overall Gain/Loss in CWPM	Weekly Mean gain per reading in CWPM
3123	95	110	+15	+3.8
3223	86	119	+33	+8.3
3323	135	166	+31	+7.8
3423	158	164	+ 6	+1.5
3523	101	133	+32	+8.0
Group Means	115.0	138.4	+23.4	+5.9
Median	101.0	133.0	+31.0	+7.8
Range	86 to 158	110 to 166	+6 to +33	+1.5 to +8.3

The baseline mean was 115.0 correct words per minute. The mean correct words per minute on the last CBM reading for this group was 138.4. All students in Group HI made gains in the number of words read correctly in one minute from the first to the last reading. The overall mean gain was +23.4 CWPM. The mean weekly gain for each student was 5.85 CWPM.

Group MH

One student (3624) had two oral reading scores above and two below her baseline value of 55 correct words per minute (see Figure 4). One of the scores was considerably above the baseline and the other was substantially above it. Both of the scores below the baseline value were only slightly below it.

Student 3724 and student 3824 had three oral reading scores above their

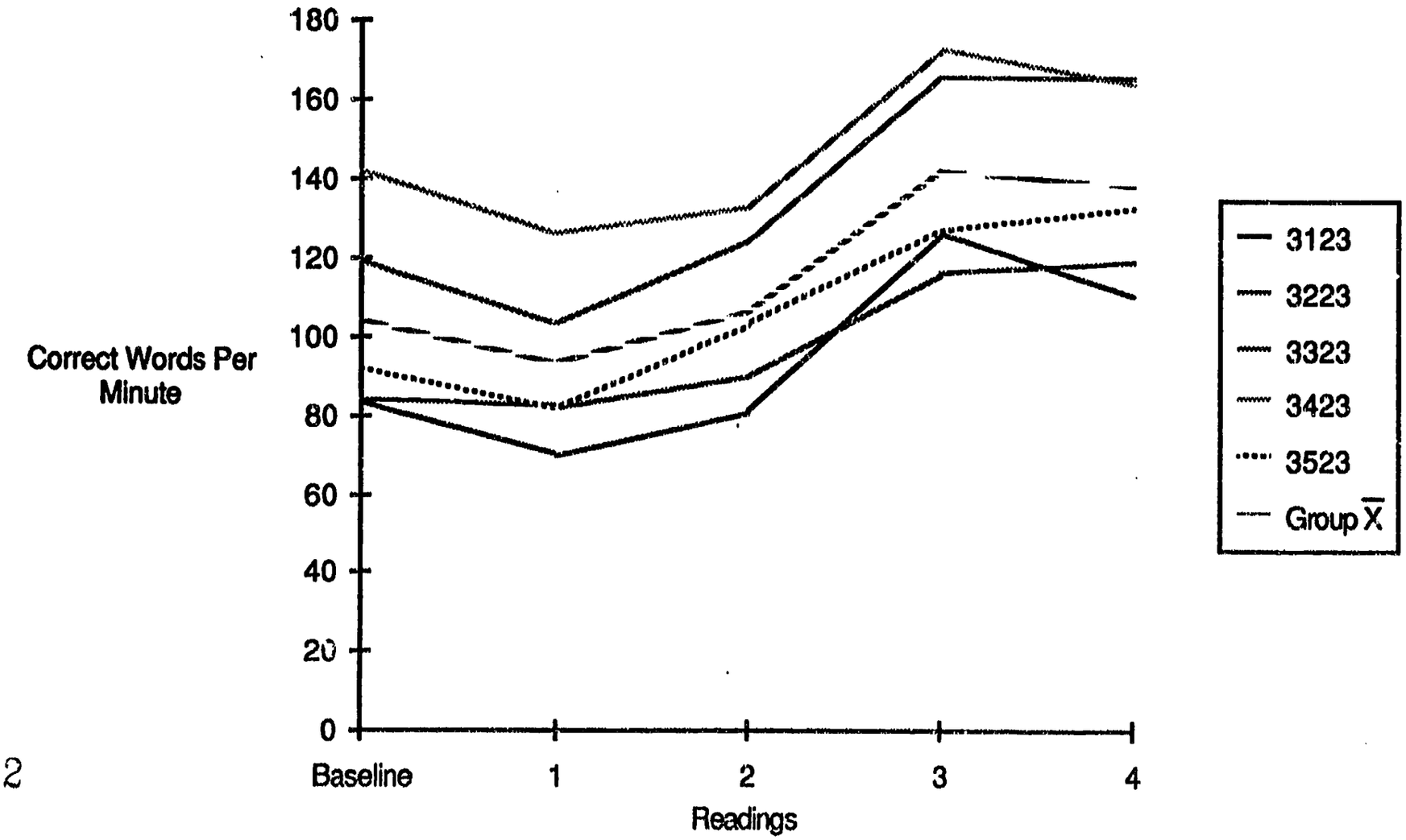


Figure 3. Reading: Individual students' correct words per minute totals on each reading (Cycle II; Group HI).

baseline values. Student 3724's baseline value was 68 correct words per minute and the student 3824's baseline value was 52 correct words per minute. For student 3724, one score was considerably above and the other two were substantially above his baseline value. The score below the baseline was only slightly below it. Student 3824 had two scores considerably above and one score substantially above his baseline value. The score below the baseline was slightly below it.

In summary, 67% of Group MH's oral reading scores were above their individual baseline values and 37% were below them.

Table 7 summarizes the results of students in Group MH.

Table 7 Student reading data: Group MH

Student	Baseline CWPM	Last Reading CWPM	Overall Gain/Loss in CWPM	Weekly Mean Gain per reading in CWPM
3624	55	59	+ 4	+1.0
3724	68	70	+ 2	+0.5
3824	52	63	+11	+2.8
Group Mean	58.3	64.0	5.7	+1.4
Median	55.0	63.0	+4.0	+1.0
Range	52 to 68	59 to 70	+2 to +11	+0.5 to +2.8

The group mean value at baseline was 58.3 correct words per minute. The mean on the last CBM reading for this group was 64.0 CWPM (see Table 7). All three students in Group MH made gains in the number of words read correctly in one minute from the first to the last reading. The overall mean gain was 5.7 CWPM. The resulting mean weekly gain for each student was 1.43 correct words

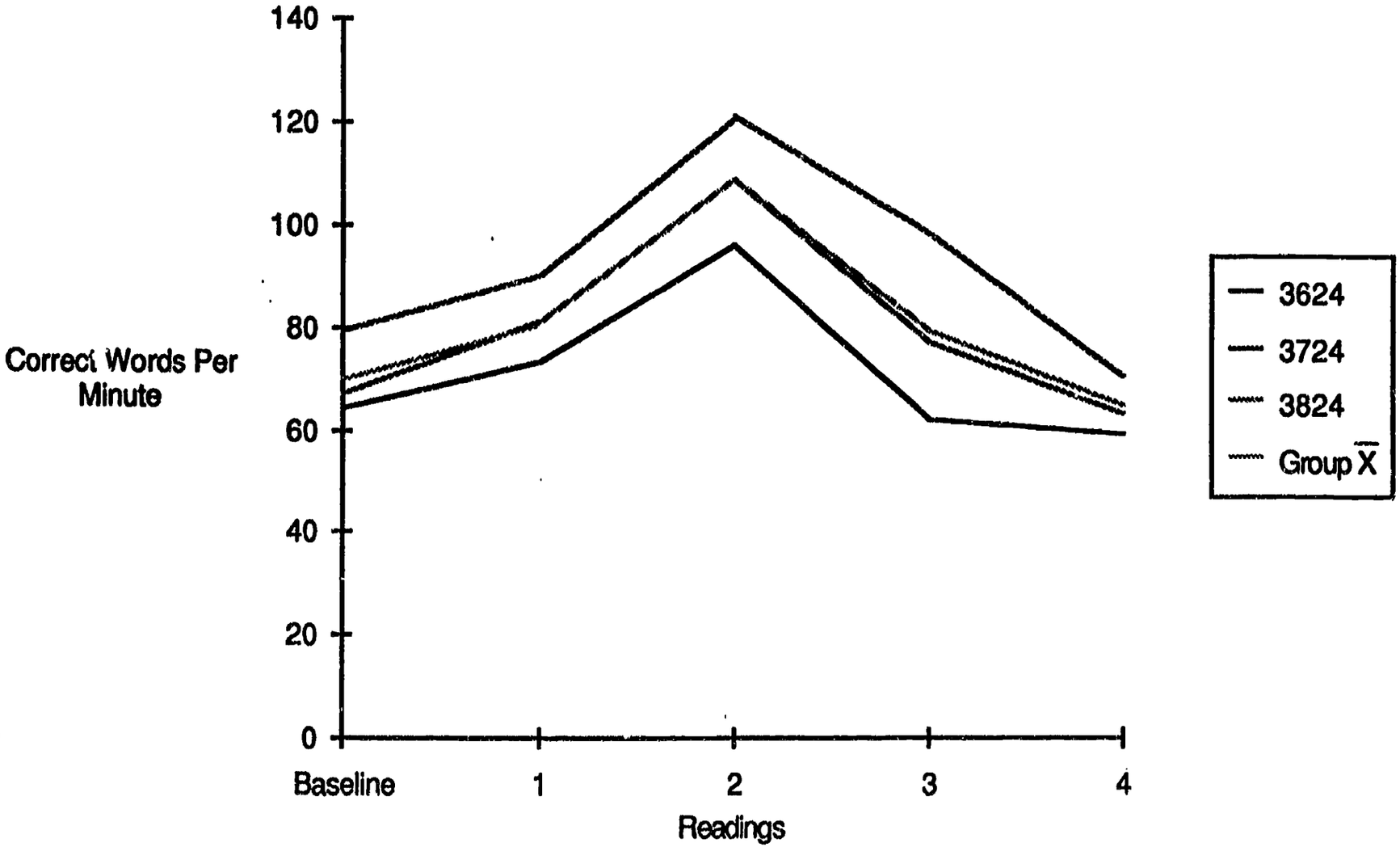


Figure 4. Reading: Individual students' correct words per minute totals on each reading (Cycle II; Group MH).

per minute.

Overall, thirteen of fifteen students enrolled in Cycle II of the PAC Program made gains in the number of words read correctly from the first to the last reading. No CBM reading totals were calculated for the nonreader, the sixteenth student enrolled in Cycle II.

Writing

The results of the students in Group BR are reported first, with the results of those in Group LI, FI, and MH following. A graphic summary of the performance of students in each group is also included (see Figures 5, 6, 7, and 8). Students' writing scores are discussed in reference to their baseline scores, which are the number of words written on the first writing prompt. It is also the first value plotted for students on their graphs. The dotted line across each graph represents the group mean for each writing. Following the discussion about each student's results is a table that reflects students' baseline value, the number of words written in three minutes on the last writing, their overall gain scores, and a mean weekly gain score. The mean gain score reflects the average number of words gained each week by each student.

Group BR

Student 2321 had four writing scores above and two below his baseline value of 17 words written in three minutes (see Figure 5). Of the scores above the baseline, one was considerably above and the other three were substantially above it. The two scores below the baseline were slightly below it.

All six of student 2421 and student 2521's writing scores were above their individual baseline values. Student 2421's baseline value was 62 words written in three minutes and student 2521's baseline value was 37 words

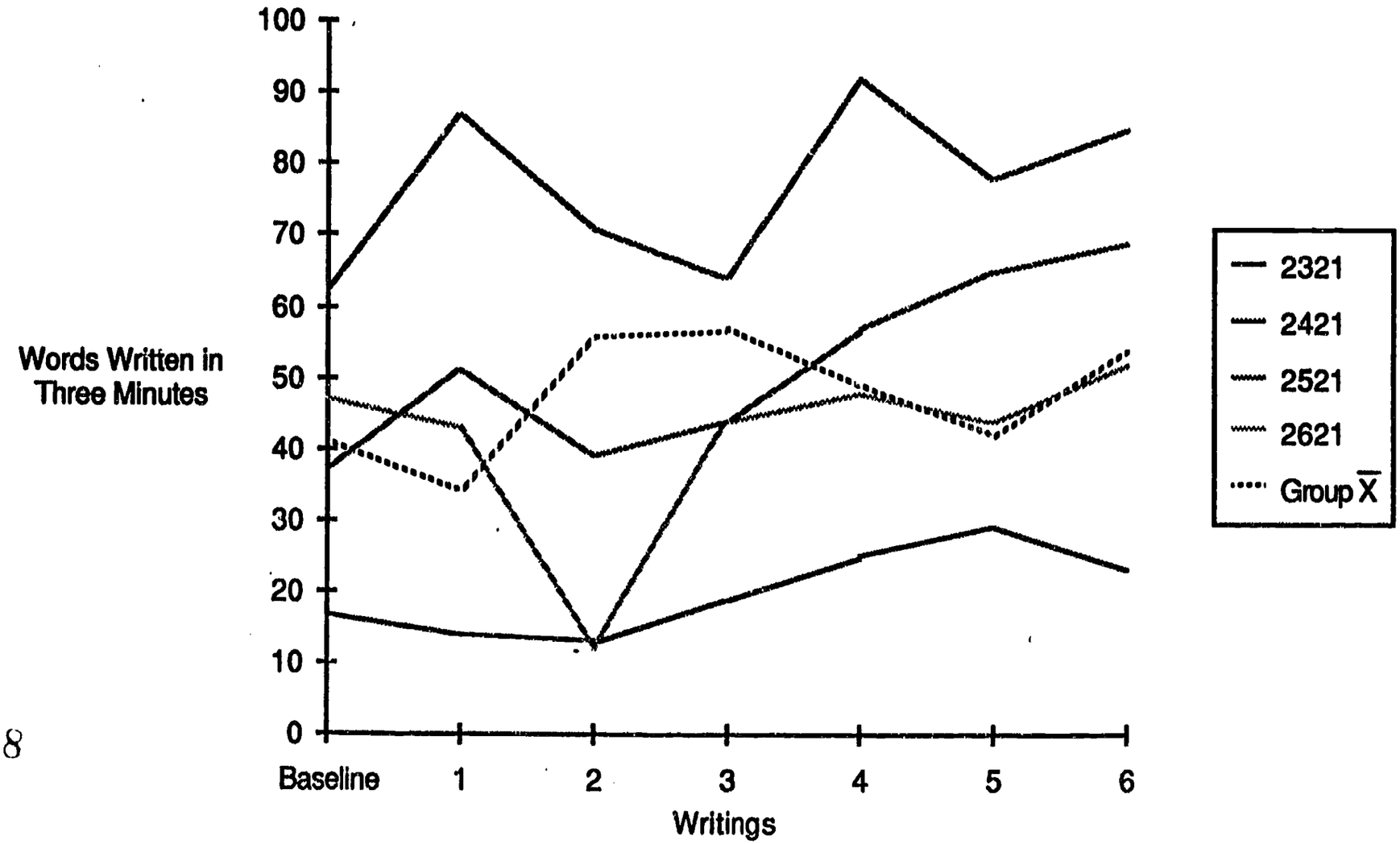


Figure 5. Writing: Individual students' number of words written in three minutes on each writing prompt (Cycle II; Group BR).

written in three minutes. For student 2421, one score was slightly above, two were considerably above, and three were substantially above her baseline value. Student 2521 had two scores slightly above, one score considerably above, and three scores substantially above her baseline value.

In summary, 89% of Group BR's writing scores were above their individual baseline means and 11% were below them.

Table 8 presents the results of students in Group BR.

Table 8 Student writing data: Group BR

Student	Baseline fluency score (first writing)	Fluency score (last writing)	Overall Gain/ Loss across writings	Weekly Mean gain per writing
2321	17	23	+ 6	+1.0
2421	62	85	+23	+3.8
2521	37	69	+20.3	+3.4
Group Mean	38.7	59.0	+20.3	+3.4
Median	37.0	69.0	+20.3	+3.4
Range	17 to 62	23 to 69	+6 to +23	+1.0 to +3.8

The group mean at baseline was 38.7 words written in three minutes. The mean number of words written in three minutes on the last writing prompt, by this group, was 59.0. All three students in Group BR made gains, in terms of the number of words written in three minutes, from the first to the last writing (see Table 8). The difference between the results from the first to the last writing represents an overall mean gain per student of 20.3 words. The weekly mean gain was 3.4 words.

Group LI

Student 2722's writing scores were above his/her baseline value of 27 words written in three minutes on five of six occasions. All five scores above the baseline were slightly above it and the one score below the baseline was considerably below it (see Figure 6).

Student 2822 had two scores above and four below her baseline value of 76 words written in three minutes. Both scores above the baseline were slightly above it. Of the scores below the baseline, one was slightly below and three were considerably below it.

Five of six of student 2922's writing scores were above her baseline value of 21 words written in three minutes. Of the scores above the baseline, one was slightly above, three were considerably above, and one was substantially above it. The score below the baseline was only slightly below it.

Student 3022's writing scores were all above his baseline value of 38 words written in three minutes. Three of the scores were slightly above and three were considerably above his baseline.

In summary, 75% of Group LI's writing scores were above their individual baseline values and 25% were below them.

Table 9 summarizes the results of students in Group LI.

Table 9 Student writing data: Group LI

Student	Baseline fluency score (first writing	Fluency score (last writing)	Overall Gain/ Loss across writings	Weekly Mean gain per writing
2722	27	33	+ 6	+1.0
2822	76	71	- 5	-0.8
2922	21	36	+15	+2.5
3022	38	48	+10	+1.7
Group Mean	40.5	47.0	+6.5	+1.1
Median	29.5	39.5	+9.5	+1.5
Range	21 to 76	33 to 71	-5 to 15	-0.8 to -2.5

The group mean value at baseline was 40.5 words written in three minutes. The mean number of words written in three minutes on the last writing prompt is 47.0. Three of four students in Group LI made gains, in terms of the number of words written in three minutes, from the first to the last writing. One student had a small loss (see Table 9). The overall mean gain per student was 6.5 words. The weekly mean gain was 1.1 words.

Group HI

Student 3123 and student 3523's writing scores were above their individual baseline values of 20 words and 63 words written in three minutes, respectively (see Figure 7). Student 3123 had three scores slightly above and three scores considerably above his baseline value of 20 words. Of the six scores above the baseline for student 3523, two were slightly above, one was

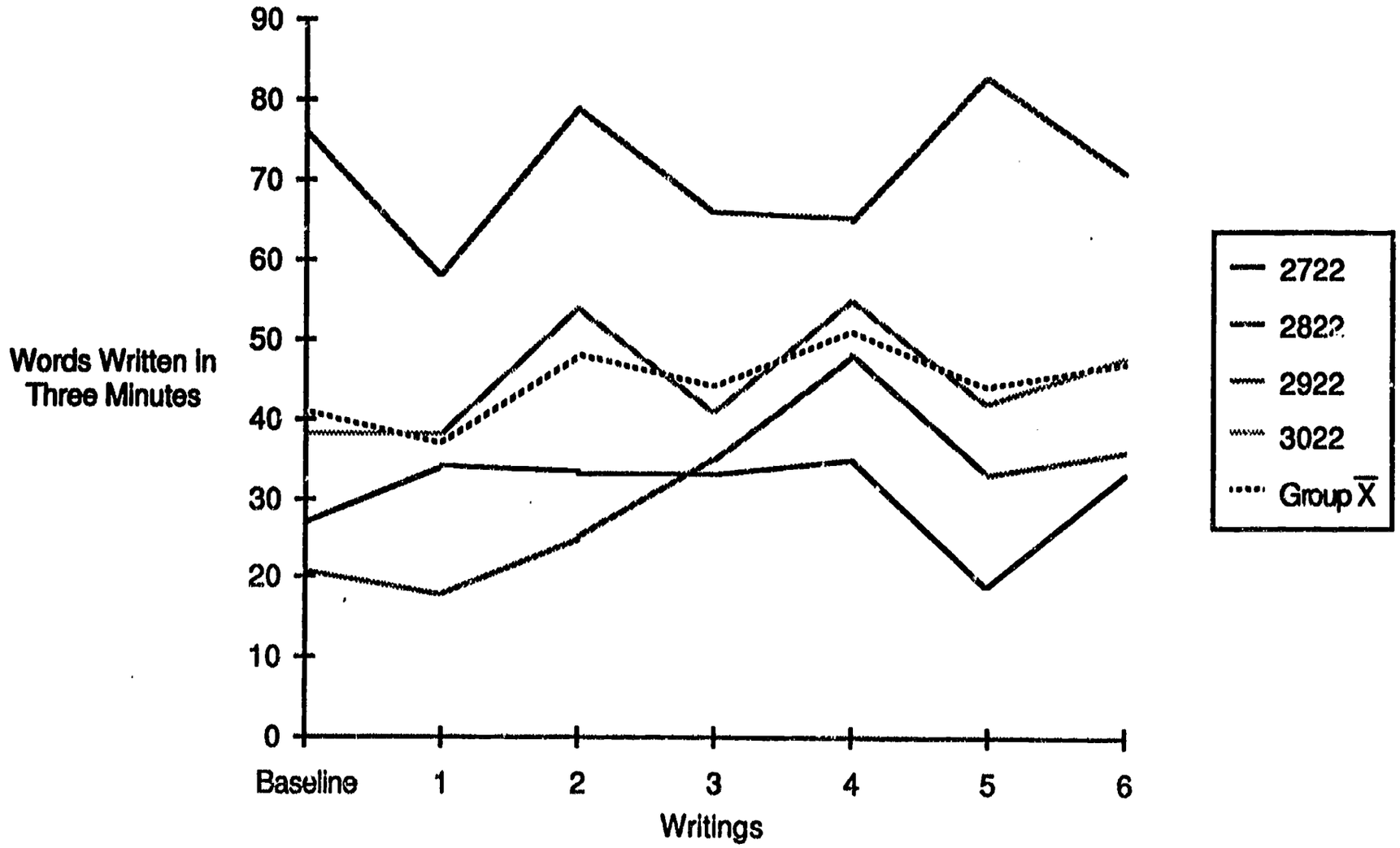


Figure 6. Writing: Individual students' number of words written in three minutes on each writing prompt (Cycle II; Group LI).

considerably above, and three were substantially above it.

Student 3223 had four scores above and two scores below her baseline value of 57 words. Two of the scores were slightly above and two were considerably above the baseline. One score below the baseline was slightly below it and the other was considerably below it.

Student 3323 and student 3423 each had five of six writing scores above their individual baseline values of 56 words and 36 words written in three minutes, respectively. Student 3323 had three scores slightly above, one score considerably above, and one score substantially above her baseline. The score below the baseline of 56 words written in three minutes was only slightly below it.

Three of the scores for student 3423 were slightly above the baseline, with the other two scores substantially above it. This student's score below the baseline was only slightly below it.

In summary, 87% of Group HI's writing scores were above their individual baseline values and 13% were below them.

Table 10 summarizes the results of students in Group HI.

Table 10 Student writing data: Group HI

Student	Baseline fluency score (first writing)	Fluency score (last writing)	Overall Gain/ Loss across writings	Weekly Mean gain per writing
3123	20	25	+ 5	+0.8
3223	57	59	+ 2	+0.3
3323	56	58	+ 2	+0.3
3423	36	27	- 9	-1.5
3523	63	83	+20	+3.3
Group Mean	46.4	50.4	+4.0	+0.8
Median	56.0	58.0	+2.0	0.3
Range	20 to 63	25 to 83	-9 to +20	-1.5 to +3.3

The group mean value at baseline was 46.4 words written in three minutes. The mean number of words written on the last writing prompt was 50.4. Four of five students in Group HI made gains, in numbers of words written in three minutes, from the first to the last writing (see Table 10). One student had a small loss. The overall mean gain per student was 4.0 words. The weekly mean gain was 0.8 words.

Group MH

Student 3624's writing scores were all above her baseline value of 43 words written in three minutes. Two of the scores were considerably above and four were substantially above it (see Figure 8).

Student 3724's writing scores were above his baseline value of 51 words on

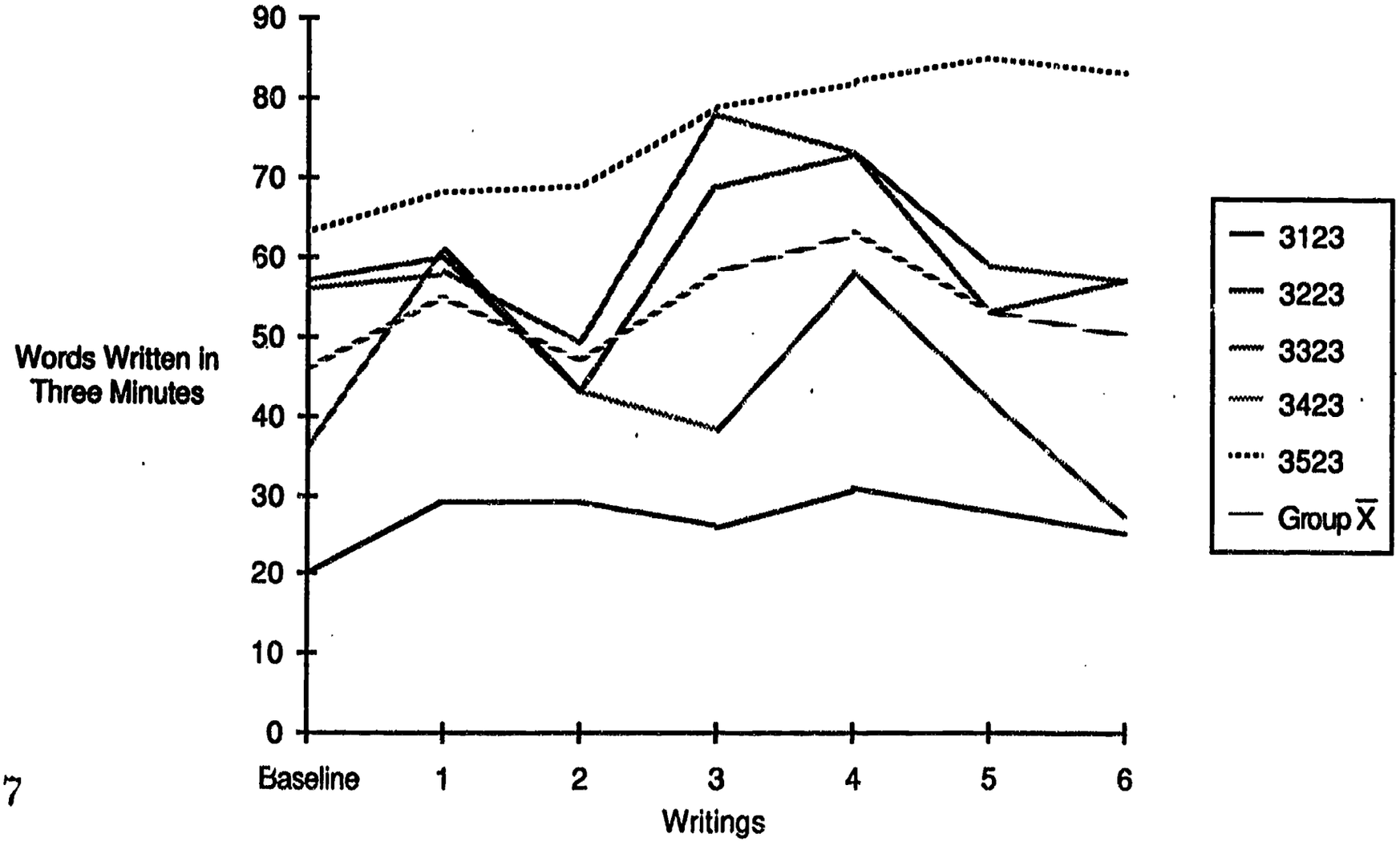


Figure 7. Writing: Individual students' number of words written in three minutes on each writing prompt (Cycle II; Group HI).

five of six occasions. Two of the scores were slightly above and three scores were considerably above the baseline. The one score below the baseline was only slightly below it.

Student 3824 had three scores above and three below his baseline value of 41 words written in three minutes. All three scores above the baseline were slightly above it and the three scores below it were considerably below it.

In summary, 78% of the writing scores were above the students' individual baseline values and 22% were below them.

Table 11 summarizes the results of students in Group MH.

Table 11 Student writing data: Group MH

Student	Baseline fluency score (first writing)	Fluency score (last writing)	Overall Gain/ Loss across writings	Weekly Mean gain per writing
3624	43	86	+43	+7.2
3724	51	63	+12	+2.0
3824	41	46	+ 5	+0.8
Group Mean	45.0	65.0	+20.0	+3.3
Median	43.0	63.0	+12.0	+2.0
Range	41 to 51	46 to 86	+5 to +43	+0.8 to +7.2

The group mean value at baseline was 45.0 words written in three minutes. The mean number of words written on the last writing prompt was 65.0 words. All three students in Group MH made gains, in terms of the number of words written in three minutes, from the first to the last writing. The overall mean gain per student was 20.0 words. The weekly mean gain for each student was 3.3 words.

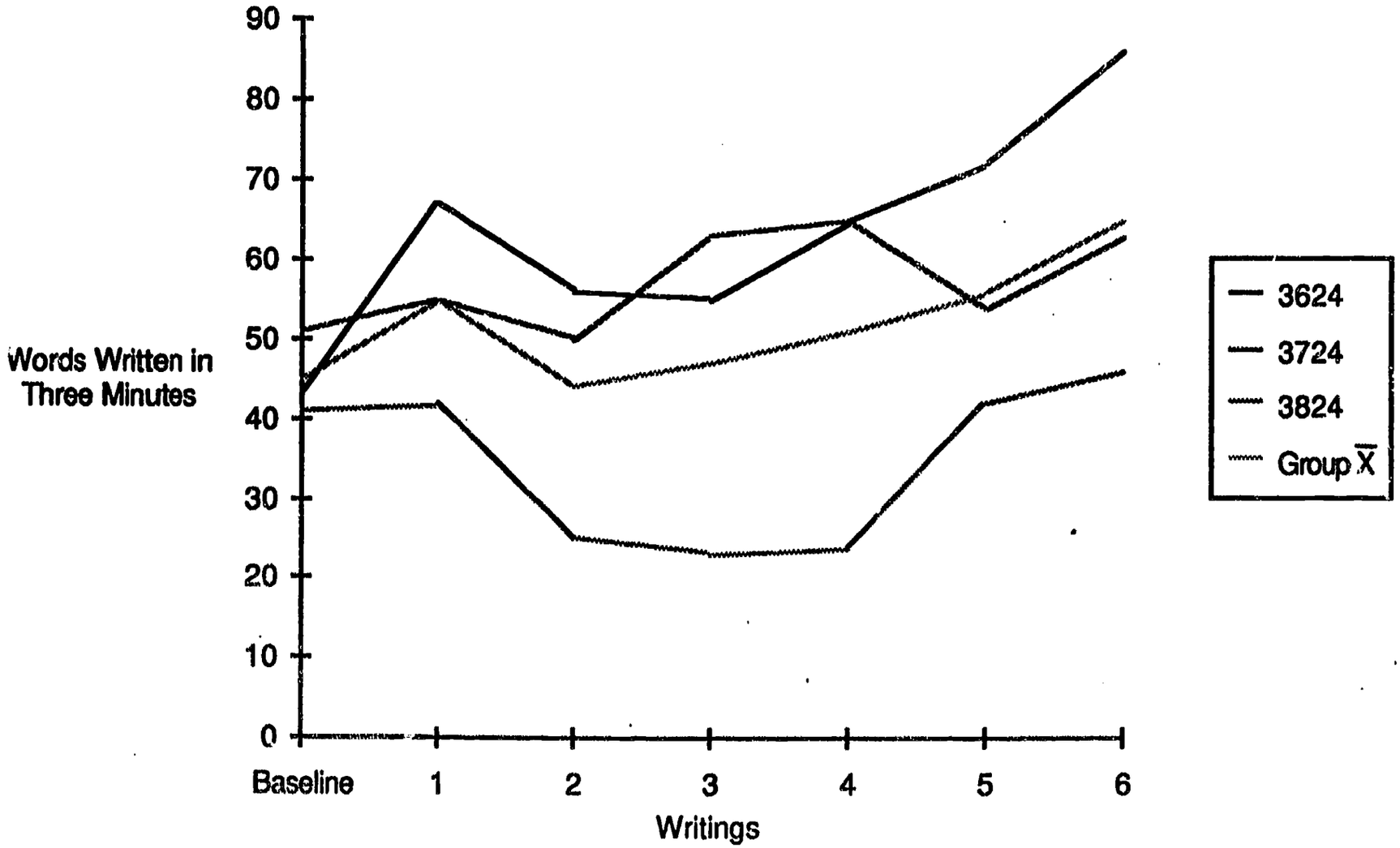


Figure 8. Writing: Individual students' number of words written in three minutes on each writing prompt (Cycle II; Group MH).

Overall, thirteen of fifteen (87%) students enrolled in Cycle II of the PAC Program made gains in terms of the number of words written in three minutes.

Writing Task Difficulty Index. Immediately after the completion of a writing prompt, the students indicated, on an evaluation form, whether they felt the prompt was easy or a difficult one for them and to state why this was so. This was done so that student perceptions regarding task difficulty could be determined and to investigate the relationship between student perception of difficulty and actual fluency in writing.

Results are summarized in Table 12. The writing prompts are ranked on the basis of the mean number of words written in three minutes by all groups on each prompt. Also included are the percentages of students who felt the prompt was either easy or difficult.

The range in number of words written was from 39.0 for the prompt of Landlords to 55.3 words/3 minutes for the prompt of Best Things. The prompt that was designated as "easy" by the highest percentage of students was Landlords (the prompt on which the fewest mean number of words was produced). Rank order correlation between number of words written and perception of difficulty was -.21. There was no relation between group perception of difficulty and actual group performance.

In almost every instance, the most commonly cited reason for a prompt to be rated as "easy" was that it was personal or that it required common sense. The two main reasons for a prompt to be rated as "difficult" were poor spelling, or not enough time.

Table 12 Writing Fluency and Difficulty Index Results: Cycle I

Prompt	Mean	Easy	Difficult
1. Best Things	55.3	80%	20%
2. Good Friends	51.3	73%	27%
3. New Identity	51.2	67%	33%
4. Dream Date	48.9	67%	33%
5. Interviews	46.1	73%	27%
6. Dear Abby	44.8	80%	20%
7. Landlords	39.0	87%	13%

Reliability and Validity of the Measures

Reading

Reliability. Two types of reliability information were calculated. First, alternate form reliability for two narrative and two expository texts was determined. The two narrative selections were read in one reading session and the two expository selections were also read in one session the following week. All of the students enrolled in Cycle II, with the exception of the nonreader, read each of the selections. All passages, both narrative and expository, were fourth grade level materials, as determined by the Fry and SMOG readability formulae. The reliability coefficient for the narrative texts was .94 and for the expository texts, .68.

Second, interrater reliability was calculated using percent agreement between two raters. All PAC students read a narrative and an expository passage. The one-minute reading of each text was recorded on audiotape. Each

rater then listened to the reading samples once. As they listened to the taped readings they coded miscues.

Agreement was then calculated for the number of words read correctly (CWPM) and the total number of words read in the one minute. The percent agreement for the correct number of words read on the narrative selections was 98.84% and for the total number of words read, it was 99.7%. For the expository selections, the agreement between the raters for the number of words read correctly in the one-minute was 97.5% and for the total number of words read, the percentage was 99.7% (See Table 13). There is a high percent of agreement between the raters in each instance.

Table 13 Percent agreement between two raters

	Measures	
	Narrative	Expository
Number of words read correctly in one minute	98.8%	97.5%
Total number of words read in one minute	99.7%	99.7%

Validity. Students' scaled scores on the California Achievement Test, Level 18, (CAT), comprehension subtest, administered prior to program admission, were correlated with the first CBM reading correct word per minute (CWPM) totals. The resulting coefficient was .24. The students' scaled scores on the CAT posttest were correlated with their last CBM reading scores. The resulting coefficient was .49.

Writing

Reliability. The number of words written (fluency) on each prompt were counted by two raters. The interrater reliability coefficient was .99 for each of the seven prompts.

Evaluation

Reading

Based on the feedback received during the staff meetings with the PAC teachers, the major changes, discussed previously, were implemented mid-cycle. The remainder of the cycle was then used to evaluate the modifications and make decisions about further modifications for Cycle III.

Writing

Teachers indicated that they were satisfied with the procedural modifications and the changes made to the writing prompts for this cycle. They recommended that the prompts and procedures remain the same for the next cycle.

Modifications

Reading

The following changes were made in addition to those made during the middle of Cycle II. First, in order to reduce administration time, it was decided to use narrative texts only for Cycle III. The reliability coefficient for the narrative selections (94) was higher than for the expository selections, and although passage difficulty will differ as different passages are used, whether narrative or expository, the greater consistency of this group with narrative and their lack of exposure to expository texts prompted the use of narrative in Cycle III.

Second, it was recommended that the readability of passages be calculated,

or that passages selected from a graded reading series be used so that the readability level within each group would remain consistent across passages. This recommendation resulted from the fact that student performance was rather sporadic from reading to reading during Cycle II. In Cycle II, the selections were ungraded and they were chosen by the teachers on the basis of the practicalness for serving instructional/curricular goals.

Finally, it was recommended that, prior to the one minute reading each week, the teacher discuss the student's goal with him or her. This would be critical for motivational purposes and for the purpose of conversing with the students about reading in general.

Writing

For Cycle III, the suggestion was made to add an aim line to each student's writing graph.

Chapter IV

Final Implementation Phase

(Phase 3)

There were two objectives for Phase 3; one, to implement and test the use of the modified reading and writing measures and procedures and; two, to investigate the validity, reliability, and feasibility of these curriculum based measures and procedures.

Phase 3 of the project coincided with Cycle III of the PAC Program. At the beginning of Cycle III, nineteen students were enrolled in the PAC program, but by the end of Cycle III, thirty-two students were enrolled. For administration and management purposes, only the original nineteen students were included in the Cycle III sample.

The beginning reading level group (Group BR) contained three students, two males and one female. Group LI, the low intermediate group, contained six students, two males and four females. The high intermediate group (Group HI) was comprised of four students, two males and two females. The middle to high school reading group (Group MH) consisted of six students, two males and four females (see Appendix A).

Procedures

Reading

During the first week of Cycle III, as part of the PAC Program's initial testing procedures, all of the original nineteen students read six texts of varying readability levels for one minute each to determine passage reliability (see Reliability Section, p. 57).

The regular one minute oral readings began during the second week of the program, after each student had been placed into one of the four instructional

groups. Seven readings were obtained for each student over a 7 week period; one reading per week. For the oral readings, students were removed from class and tested by the teacher or a teacher aide.

The teachers indicated the instructional level of the texts to be used with their particular group for this cycle. The beginning reading group (Group BR) read texts that were at the fourth grade reading level. The low intermediate group (Group LI) read sixth grade level materials. The high intermediate group (Group HI) read seventh grade level materials and the middle to high school reading group (Group MH) read eighth grade level reading materials. Selections, which were narrative, were taken from a graded reading series or, if the selections were ungraded, the Fry and SMOG readability formulae were used to determine if the materials were appropriate.

The reading procedures in Cycle III included the use of an aim line for all students. The aim line, which is a line that connects the weekly goal points, was added to encourage teacher monitoring and student motivation. Prior to each reading, the teacher and student looked at the student's personal graph. The results from the previous week's reading and the new goal (aim line) for the current week's reading were discussed. The aim line, or goal, was increased by three words per week. This "number" was chosen based on the overall group average gain score during Cycle II. Baselines, or starting points, for students were determined from their performance on the passage reliability readings administered during the first week of the PAC Program. If a student was placed into the group that was going to read fourth grade level texts each week, then the average from the two fourth grade readings administered during week 1 of PAC was used as the baseline from which to set the personal goal. If a student was placed into the group that was going to

read sixth grade level texts, then the average from the two sixth grade readings was used as the baseline. If a student was placed into the group that was going to read seventh grade level texts, the averages from the sixth and eighth grade level texts were averaged together to determine the baseline point. The starting point for each student in the group that was going to read eighth grade level texts was determined by calculating the average of the results on the eighth grade level texts.

In addition to looking at the aim line with the student prior to reading, the teacher addressed any other concerns or questions about the one minute readings. After a brief discussion, the student read the appropriate grade level text for one minute, after which the student returned to class.

Writing

The writing procedures followed during Phase 3 were the same as those used during Phases 1 and 2. The writing tasks were completed in the students' small group setting and directed by the teacher responsible for that group. Prior to writing, the teacher read the prompt aloud to the group and then provided the one minute "think" time. Next, the students were given three minutes in which to respond to the prompt. After writing, the students completed a form designed to obtain students' perceptions of the difficulty of the task.

A fluency count (number of words written) was ascertained for each of the seven writing prompts, one each week for a seven week interval, and these values were graphed on each student's progress chart. An aim line was added to each student's graph for motivational purposes. The aim line, or goal, increased by two words per writing with the first writing used as the baseline or starting point. For example, if the student wrote 32 words on the first

prompt, the goal for the following week would be set at 34 words and the next week would be 36 words and so on. The graphs were shared with the students prior to each writing, but the teachers did not meet individually with the students to discuss their personal goals. The administration of the seven prompts continued to be counterbalanced across groups.

Results

Student Achievement

Reading

The results for the students in Group BR are reported first, with the results of those in Groups LI, HI, and MH following. A graphic summary of the performance of students in each group is also included (see Figures 9, 10, 11, and 12). Individual students' oral reading results are discussed in reference to their baseline score, which is the first value plotted for them on the graph. The dotted line across each graph represents the group's mean on each reading. Following the discussion about each student's results is a table that reflects the student's baseline score, correct words per minute (CWPM) on the last reading, overall correct words per minute (CWPM) gain score (the difference between the first and last reading), and a mean weekly gain score. This mean gain score reflects the average CWPM gain per week and was derived by dividing the overall gain score by the number of readings (7). (This is identical to summing each consecutive weekly gain and dividing by the number of readings.)

In discussing the reading scores, if a reading score is within eight correct words per minute of the baseline value, either above or below it, then it is consider to be slightly above or below the baseline. If a reading score is between nine and seventeen correct words per minute of the baseline,

either above or below it, then the score is referred to as considerably above or below the baseline. Eighteen or more words above or below the baseline value for any given student is referred to as substantially above or below the baseline. These criteria, although subjective in nature, provided for consistency in discussing each individual's results.

Group BR

Four of seven of the oral reading scores for student 3931 were above and three were below baseline value of 96 correct words per minute (CWPM) (see Figure 9). Two of the four scores were slightly above this student's baseline value, and two were considerably above it. Two of the three scores below this student's baseline were slightly below it, and the other was substantially below it.

Student 4031 had two of seven oral reading scores above and five below his baseline of 70 CWPM. One of the scores was slightly above the baseline and the other was substantially above it. Of the five scores below the baseline, two were slightly below and three were considerably below it.

Student 4131 had one of seven oral reading scores above his baseline score of 83 CWPM, and it was considerably above it. Of the six scores below his baseline, two were slightly below, one was considerably below, and three were substantially below it.

In summary, 33% of Group BR's oral reading scores were above their individual baseline values and 67% of the scores were below the baseline values.

Table 14 summarizes the results for students in Group BR.

Table 14 Student reading data: Group BR

Student	Baseline CWPM	Last Reading CWPM	Overall Gain/Loss in CWPM	Weekly Mean Gain Per Reading in CWPM
#3931	96	109	+13	+1.9
#4031	70	76	+6	+0.9
#4131	83	80	-3	-0.4
Group Mean	83.0	88.3	+5.3	+0.8
Median	83.0	80.0	+6.0	+0.9
Range	70 to 96	76 to 109	-3 to +13	-0.4 to +1.9

Group BR's mean baseline value was 83.0 CWPM, with a group mean of 88.3 CWPM on the last reading. Two students in Group BR made gains in the number of words read correctly in one minute from the first to the last reading, and one student showed a slight loss. There was a group mean gain of 5.3 words read correctly in one minute (CWPM) from the first to the last reading. The resulting mean gain per reading for those students in Group BR was 0.76 correct words per minute (CWPM).

Group LI

There were six students in Group LI; however, one student in one of the other groups, because of his difficulty with reading, read Group LI level reading materials and, as a result, this student's data are reported with these data (see Figure 10).

Oral reading scores for student 4232 were all at or above her baseline value of 89 correct words per minute (CWPM). One score was equal to the

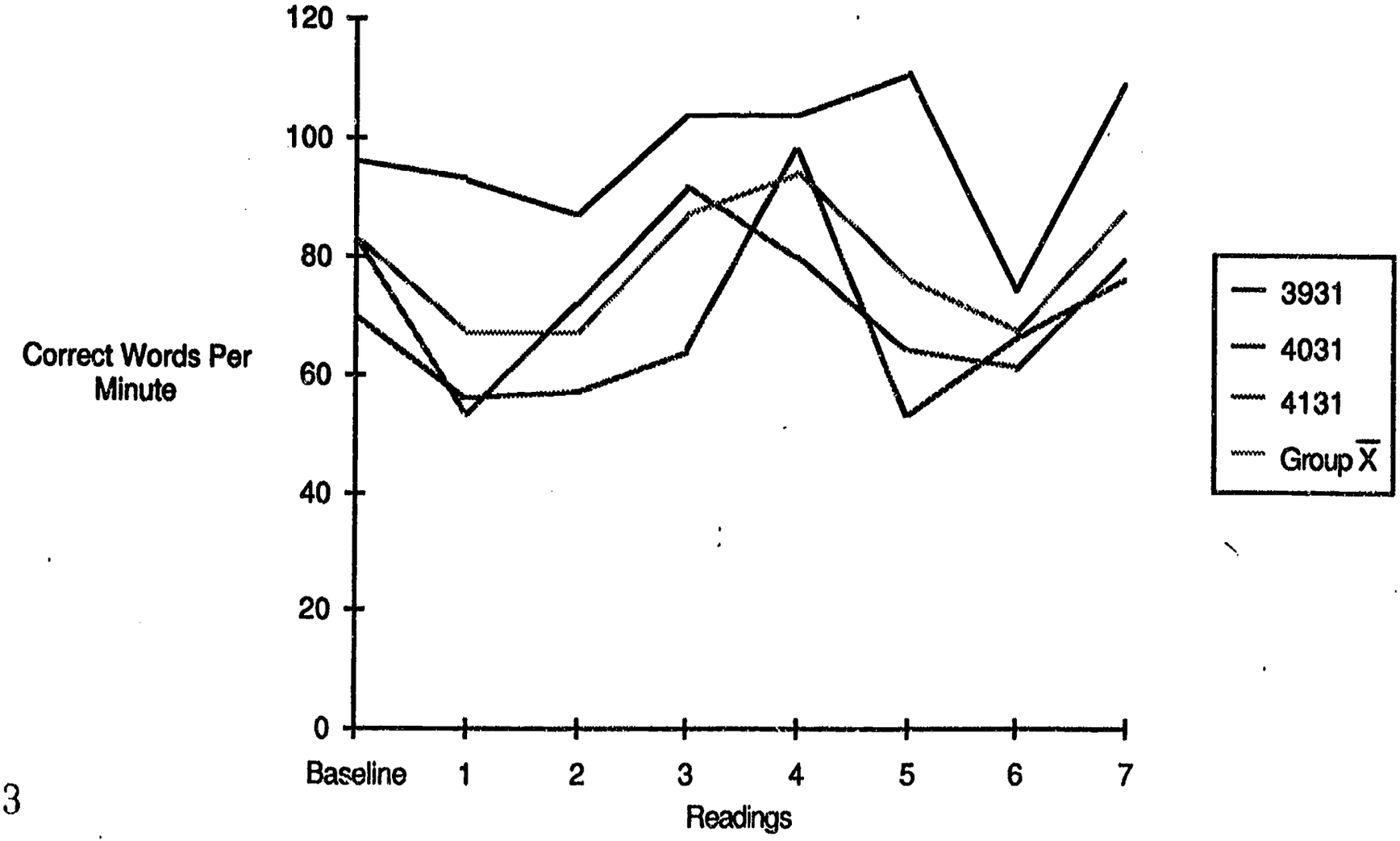


Figure 9. Reading: Individual students' correct words per minute on each reading (Cycle III; Group BR).

baseline value and six were substantially above it.

Student 4332 had four reading scores either at or above her baseline value of 110 CWPM and three scores below the baseline. Of the scores above the baseline, two were slightly above and one was considerably above it. One score (CWPM) was equal to the baseline value. The three reading scores below the baseline were only slightly below it.

Student 4432 had six reading scores above her baseline, one was slightly above, two were considerably above, and three were substantially above it. The only score below the baseline was just slightly below it.

Student 4532 also had six reading scores above his individual baseline value of 87 CWPM. All six scores were considerably above the baseline, with the score below the baseline considerably below it.

Student 4632 also had six oral reading scores above her baseline value of 79 CWPM. Five of the scores were considerably above and one was substantially above it. The only score below the baseline was just slightly below it.

Also with six oral reading scores above his baseline value of 86 CWPM was student 4732. One score was slightly above, two were considerably above, and three were substantially above the baseline value. One score was slightly below this student's baseline value.

Student 4933 had one reading score considerably above his baseline value of 71 CWPM, with the other six below it. Of the six scores below the baseline, four were slightly below, one was considerably below, and one substantially below it.

In summary, 73% of Group LI's reading scores were above their baseline values, with 27% of the scores below them.

Table 15 summarizes the results of individuals in Group LI.

Table 15 Student reading data: Group LI

Student	Baseline CWPM	Last Reading CWPM	Overall Gain/Loss in CWPM	Weekly Mean Gain Per Reading in CWPM
#4232	89	138	+49	+7.0
#4332	110	120	+10	+1.4
#4432	107	117	+10	+1.4
#4532	87	99	+12	+1.7
#4632	79	93	+14	+2.0
#4732	86	102	+16	+2.3
#4933	71	66	-5	-0.7
Group Mean	89.9	105.0	+15.1	+2.2
Median	84.5	104.5	+11.2	+1.5
Range	71 to 110	66 to 138	-5 to +49	-0.7 to +7.0

The group baseline mean value was 89.9 and the CWPM mean value of the last reading was 105.0. Six of the seven students in Group LI gained in the number of words read correctly in one minute (CWPM) from the first to the last reading, with one student showing a slight loss. The overall (from first to last reading) mean gain per student was 15.1 CWPM. Students averaged a mean gain of 2.2 CWPM per weekly reading.

Group HI

Student 4833 had six oral reading scores above and one score below her baseline value of 120 correct words per minute (CWPM) (see Figure 11). Of the

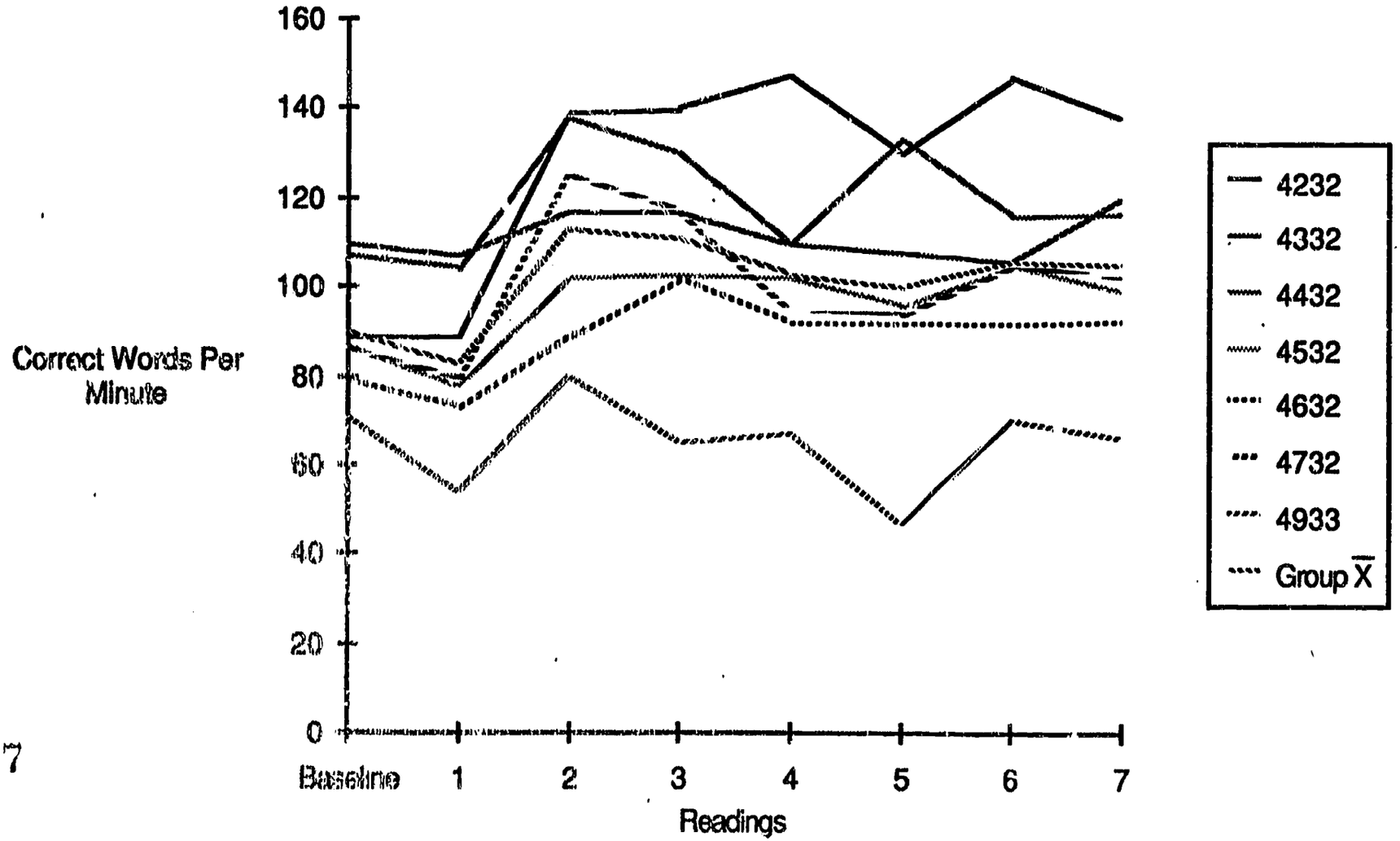


Figure 10. Reading: Individual students' correct words per minute on each reading (Cycle III; Group LI).

six scores above the baseline, two were slightly above and four were substantially above it. One score was slightly below the baseline.

Student 5033 had five reading scores above and two below her baseline value of 90 CWPM. One of the scores was slightly above the baseline, three were considerably above, and one was substantially above it. Two scores were slightly below this student's baseline.

Student 5133 had four reading scores above and three below his baseline value of 71 CWPM. Of the four scores above the baseline, two were slightly above, one was considerably, and the other was substantially above it. Of the three scores below the baseline, two were slightly below and one was considerably below it.

In summary, 71% of Group HI's reading scores were above their individual baseline values, with 29% of the scores below the baseline values.

Table 16 summarizes the results of students in Group HI.

Table 16 Student reading data: Group HI

Student	Baseline CWPM	Last Reading CWPM	Overall Gain/Loss in CWPM	Weekly Mean Gain Per Reading in CWPM
#4833	120	181	+61	+8.7
#5033	90	112	+22	+3.1
#5133	71	77	+ 6	+0.9
Group Mean	93.7	123.4	+29.7	+4.2
Median	90.0	112.0	+22	+3.1
Range	71 to 120	77 to 181	+6 to +61	+0.9 to +8.7

The group baseline mean value for Group HI was 93.7 CWPM and the CWPM mean value of the last reading was 123.4. All three of the students in Group HI gained in the number of words read correctly (CWPM) from the first to the last reading. The overall mean gain per student was 29.7 CWPM, which reflects a mean gain per weekly reading of 4.2 CWPM per student.

Group MH

Five out of six students (5234, 5334, 5534, 5634, 5734) in Group MH had six out of seven oral reading scores above their individual baseline values (see Figure 12).

Student 5234, whose baseline score was 178 CWPM, had one score slightly above, one considerably above, and four substantially above his baseline. The one score below the baseline was slightly below it.

Student 5334, with a baseline score of 109 CWPM, had one score slightly above, three considerably above, and two substantially above her baseline. The score below the baseline was substantially below it.

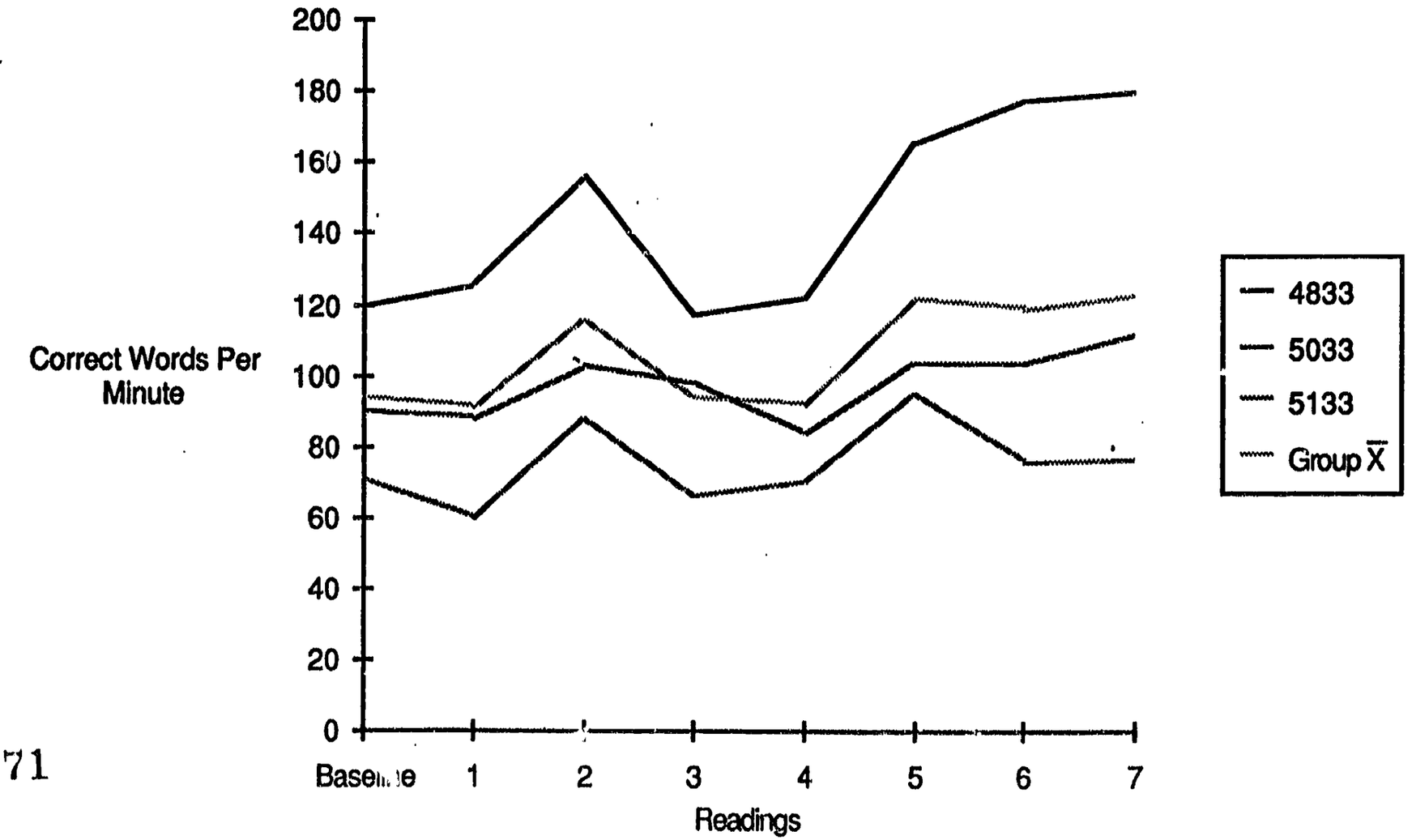


Figure 11. Reading: Individual students' correct words per minute on each reading (Cycle III; Group HI).

Student 5534 had one score slightly above her baseline of 120 CWPM, with the other five substantially above it. The score below the baseline was considerably below it.

Of the six scores for student 5634, two were slightly above, three were considerably above, and one was substantially above her baseline value of 110 CWPM. The reading score below the baseline was considerably below.

Student 5734 had two scores slightly above, one considerably above, and three substantially above his baseline value, which was 110 CWPM. The score below the baseline was only slightly below it.

Student 5434 had seven out of seven oral reading scores above her baseline value of 96 CWPM. One score was slightly above, three were considerably above, and three were substantially above it.

In summary, 88% of Group MH's oral reading scores were above their individual baseline values, with 12% below the baseline values.

Table 17 summarizes the results of students in Group MH.

Table 17 Student reading data: Group MH

Student	Baseline CWPM	Last Reading CWPM	Overall Gain/Loss in CWPM	Weekly Mean Gain Per Reading in CWPM
#5234	178	210	+32	+4.6
#5334	109	115	+ 6	+0.9
#5434	96	107	+11	+1.6
#5534	120	162	+42	+6.0
#5634	110	123	+13	+1.9
#5734	110	112	+ 2	+0.3
Group Mean	120.5	138.2	+17.7	+2.5
Median	114.5	119.5	+14.5	+2.5
Range	96 to 178	107 to 210	+2 to +42	+0.3 to +6.0

The group baseline mean value was 120.5 CWPM and the CWPM mean value of the last reading was 138.2. All six of the students in Group MH gained in the number of words read correctly (CWPM) from the first to last reading. The overall (from first to last reading) mean gain per student was 17.7 CWPM. If this value was divided by the number of opportunities to gain (readings) the resulting mean gain per weekly reading was 2.5 CWPM per student.

Overall, seventeen out of nineteen students involved in Cycle III of the PAC Program made gains on the CBM from the first to the last reading. The mean values, across all four groups, were as follows: 1) the mean baseline value was 96.8 CWPM; 2) the mean number of words read on the last CBM reading was 113.7 CWPM; 3) the mean gain from the first to the last reading was 17.0 CWPM; and; 4) the mean gain each week was 2.4 CWPM. Further, the percentage

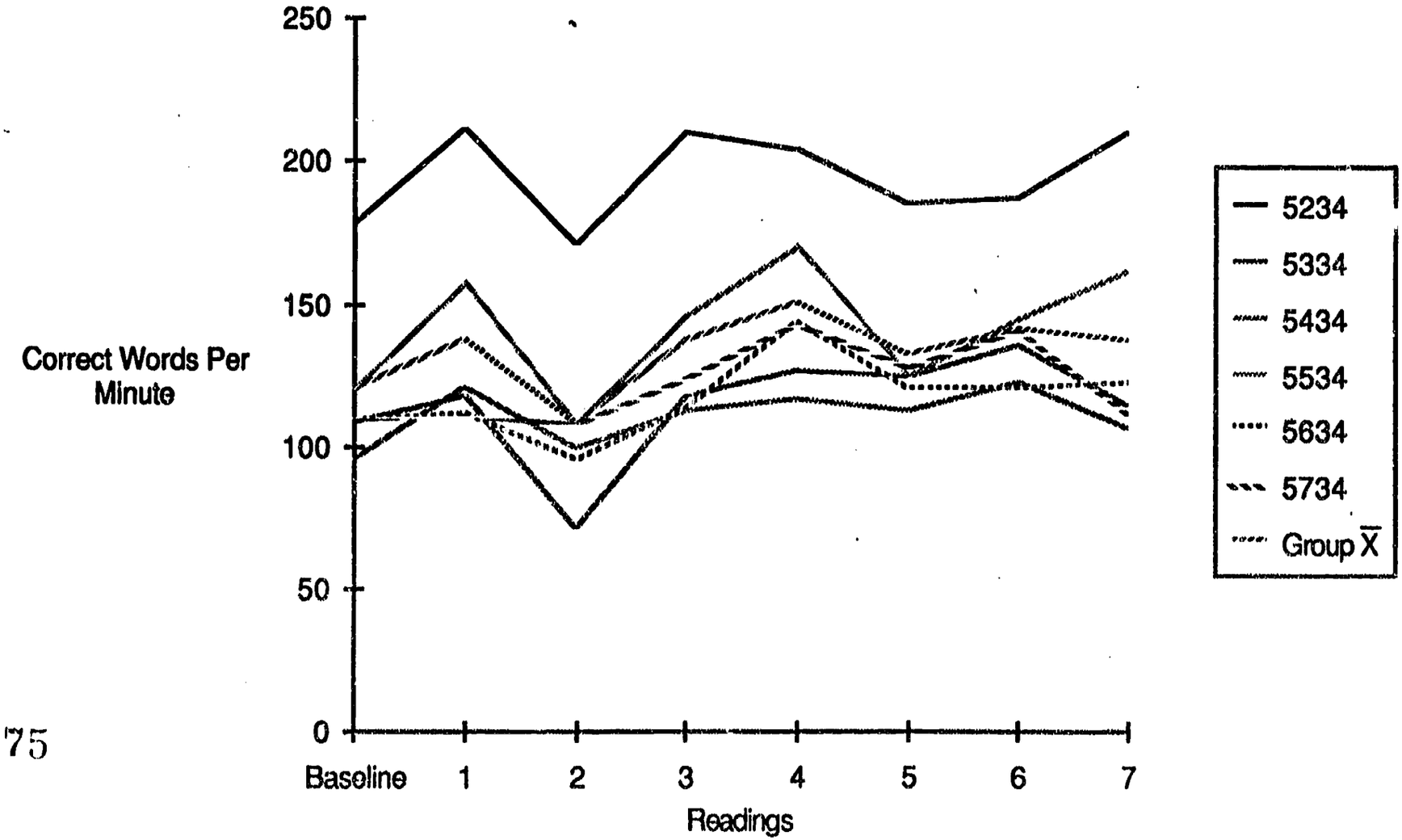


Figure 12. Reading: Individual students' correct words per minute on each reading (Cycle III; Group MH).

of reading scores, across all four groups, above individual baseline values was 71%, with 29% of the scores below the individual baseline values.

Writing

The results for the students in Group BR are reported first, with the results of those in Groups LI, HI, and MH following. A graphic display of student performance within each group is included (see Figures 13, 14, 15, and 16). Individual students' writing scores are discussed in reference to their baseline score, which is the number of words written on the first writing prompt. It is also the first value plotted for the students on individual graphs. The dotted line across each graph represents the group's mean on each writing. Following the discussion about each student's results is a table that reflects the student's baseline score, the number of words written in three minutes on the last writing, the overall gain score (words written in three minutes across the seven writings), and a weekly mean gain score.

In discussing the writing scores, the convention used for reading scores was applied again. If a writing score was within eight words written of the baseline value, either above or below, it was considered to be slightly above or below the baseline. If a writing score was between nine and seventeen words of the baseline, either above or below, then the score was referred to as considerably above or below the baseline. Eighteen or more words above or below the baseline value for any given student was referred to as substantially above or below the baseline. Again, these criteria, although subjective, provided for consistency in discussing individual results.

Group BR

Student 3931's writing scores were above her baseline value of 30 words written in three minutes (see Figure 13). One score was slightly above, four

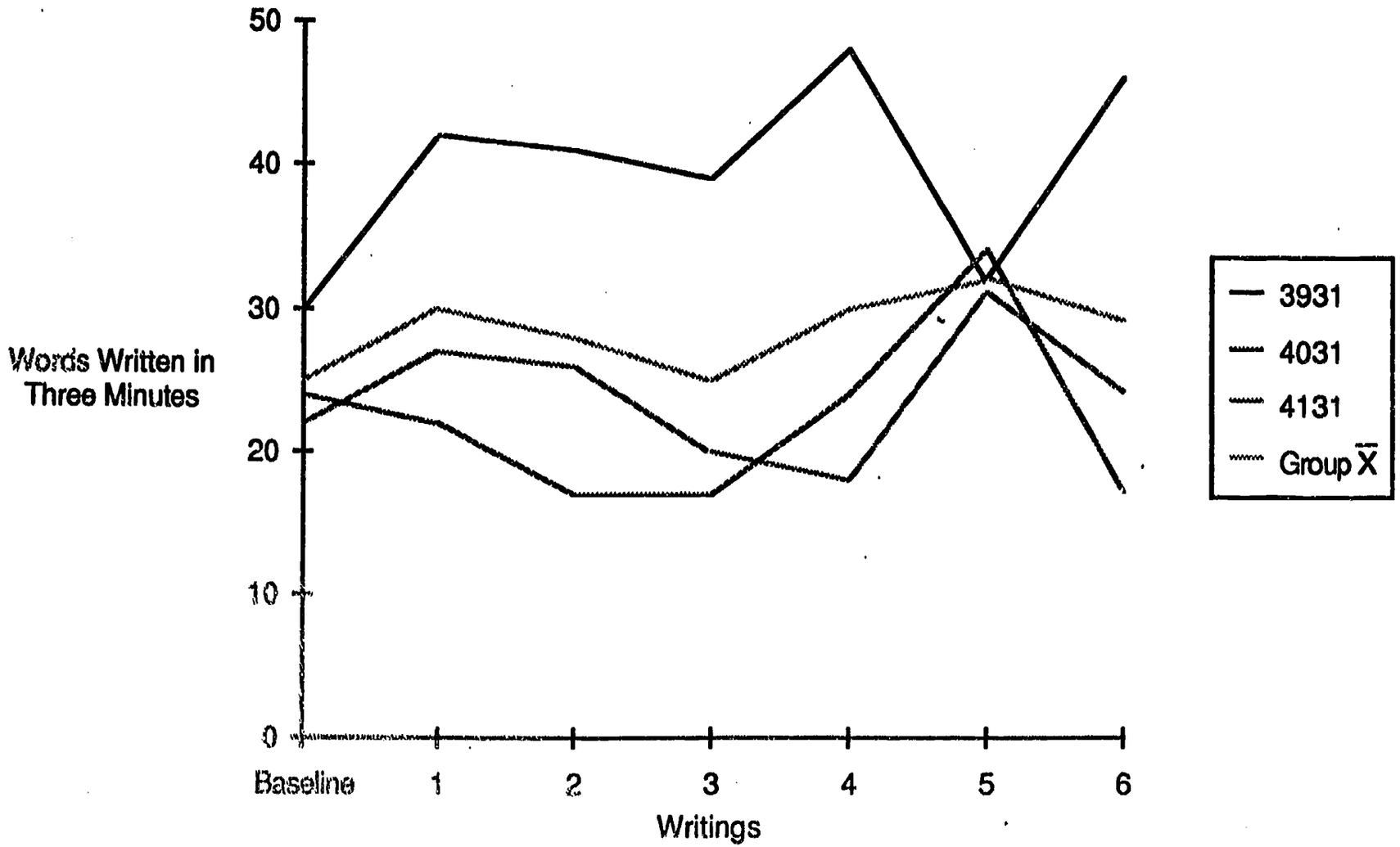


Figure 13. Writing: Individual students' number of words written in three minutes on each writing prompt (Cycle III; Group BR).

were considerably above, and one was substantially above the baseline value.

Student 4031 had two writing scores above and four below his baseline value of 24 words written in three minutes. One score was slightly above and the other was considerably above the baseline. The four scores below the baseline were slightly below it.

Student 4131 had four writing scores above and two scores below his baseline value. Three of the four scores above the baseline were slightly above it, with the other score considerably above it. The two scores below the baseline were only slightly below it.

In summary, 67% of the writing scores in Group BR were above the individual baseline values, with 33% below them.

Table 18 summarizes the results of students in Group BR

Table 18 Student writing data: Group BR

Student	Baseline fluency score (first writing)	Fluency score (last writing)	Overall Gain/Loss (from first to last writing)	Weekly Mean Gain per Writing
#3931	30	46	+16	+2.7
#4031	24	17	- 7	-1.2
#4131	22	24	+ 2	+0.3
Group Mean	25.3	29.0	+3.7	+0.5
Median	24.0	24.0	+2.0	+0.3
Range	22 to 30	17 to 46	-7 to 16	-1.2 to 2.7

The baseline mean value was 25.3 words written in three minutes and the mean of the last writing was 29.0 words. Two of the three students in Group BR made gains, in terms of the number of words written in three minutes, from

the first to the last writing. The overall mean gain per student was 3.7 words written (from first to last writing). The mean gain each week per student was 0.6 words.

Group LI

All six of the writing scores for three of the students in Group LI were above their individual baseline values (see Figure 14). Student 4232 had two scores that were considerably above and four that were substantially above her baseline value of 20 words written in three minutes.

Student 4532 had two scores that were slightly above and four scores that were considerably above his baseline value of 15 words written in three minutes.

Student 4632, whose writing scores were all above her baseline value of 7 words written in three minutes, had two scores slightly above, three considerably above and one substantially above the baseline.

Student 4332 had two writing scores above and four below her baseline value of 35 words written in three minutes. One of the two scores above the baseline was slightly above it and the other score was considerably above it. Of the four scores below the baseline, three were slightly below and one was considerably below it.

Student 4432 had three writing scores above and three below her baseline value of 39 words written in three minutes. The three scores above the baseline were slightly above it. Of the three scores below the baseline, two were slightly below and one was substantially below it.

Finally, student 4732 had two writing scores above and four below his baseline value of 22 words written in three minutes. One of the scores was slightly above the baseline value and the other was considerably above it.

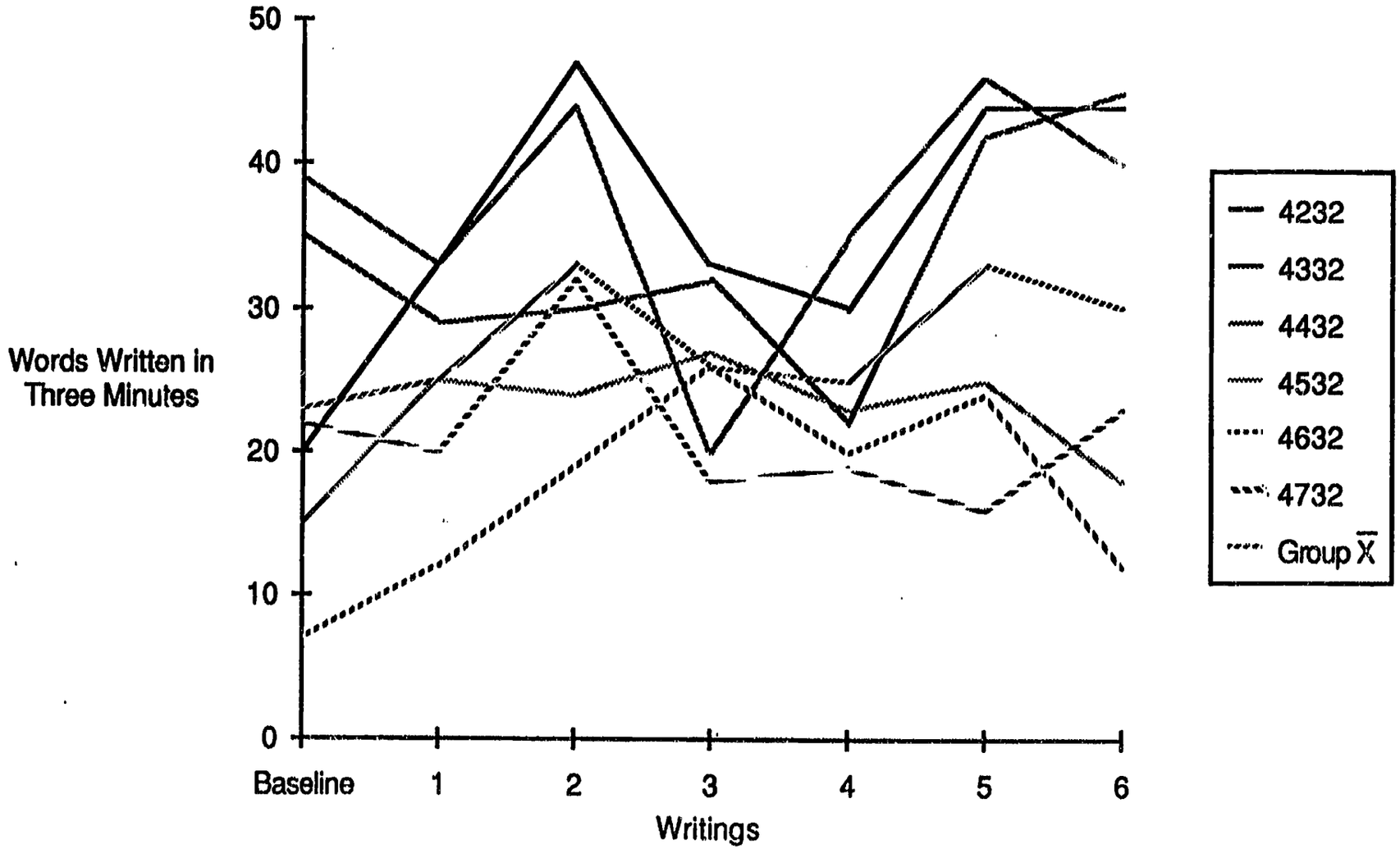


Figure 14. Writing: Individual students' number of words written in three minutes on each writing prompt (Cycle III; Group LI).

All of the four scores below the baseline were slightly below it.

In summary, 69% of Group LI's writing scores were above the individual baseline values and 31% of the scores were below them.

Table 19 presents the results of students in Group LI.

Table 19 Student writing data: Group LI

Student	Baseline fluency Score (first writing)	Fluency score (last writing)	Overall Gain/Loss (from first to last writing	Weekly Mean Gain per Writing
#4232	20	44	+24	+4.0
#4332	35	45	+10	+1.7
#4432	39	40	+ 1	+0.2
#4532	15	18	+ 3	+0.5
#4632	7	12	+ 5	+0.8
#4732	22	23	+ 1	+0.2
Group Mean	23.0	30.3	+7.3	+1.2
Median	24.5	29.5	+7.0	+1.0
Range	7 to 39	12 to 45	+1 to +24	+0.2 to +4.0

This group's mean baseline value was 23.0 words written in three minutes. The mean number of words written in three minutes on the last writing prompt was 30.3. All students in Group LI made gains in terms of the number of words written in three minutes. The mean gain by the group was 7.3 words written in three minutes. The mean gain in words written each week was 1.2.

Group HI

Five of six writing scores for two of the students in Group HI were above their individual baseline values (see Figure 15). Both students (4933, 5033)

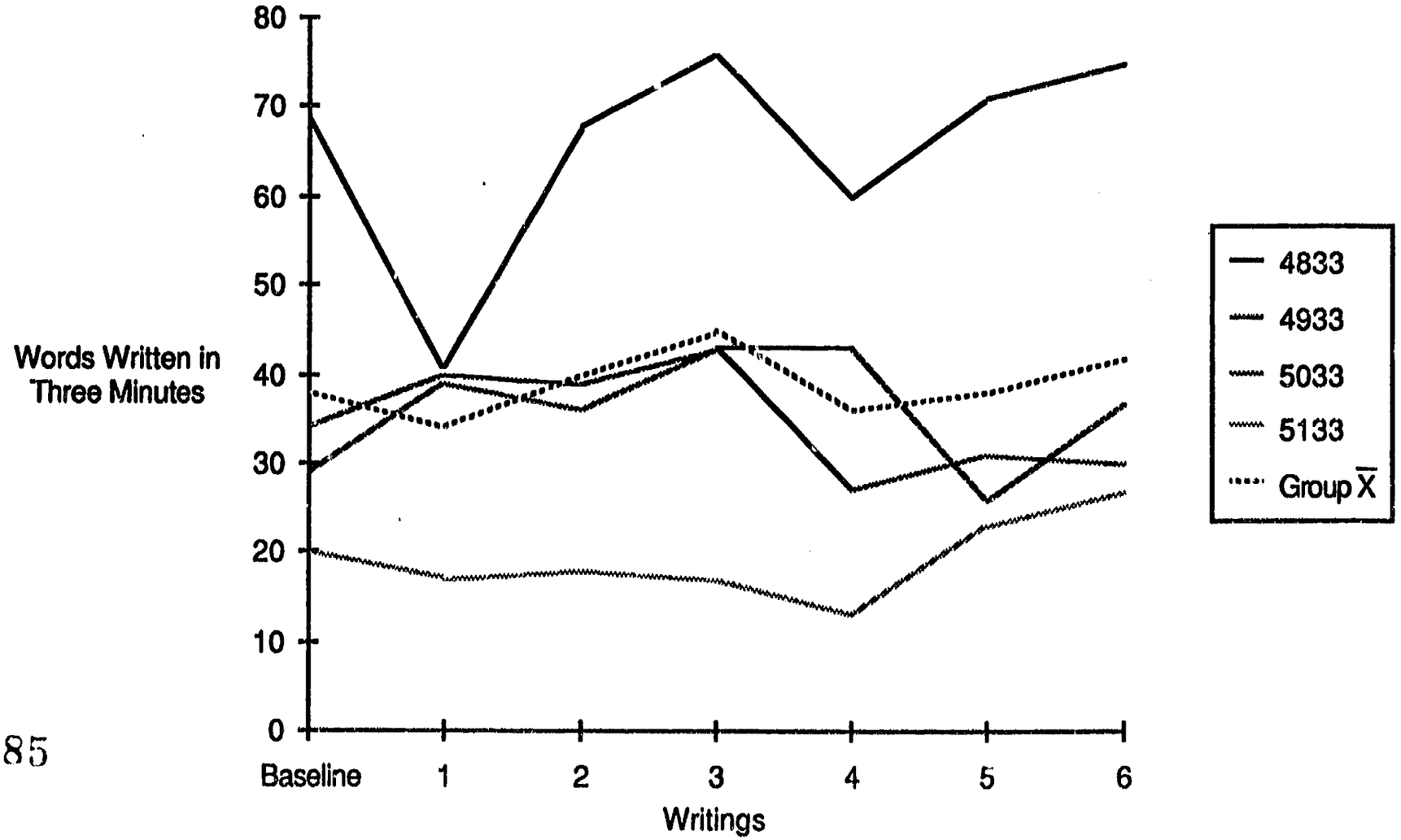


Figure 15. Writing: Individual students' number of words written in three minutes on each writing prompt (Cycle III; Group HI).

had three scores that were slightly above and two scores considerably above their baseline values. Student 4933 had a baseline value of 34 words written in three minutes and Student 5033 had a baseline value of 29 words written in three minutes. Each of the scores that was below both of these students' baseline values was in the slightly below range.

Student 4833 had three scores above and three scores below her baseline value of 69 words written in three minutes. The three scores above the baseline value were in the slightly above range. Of the three scores below the baseline two were slightly below and one was substantially below it.

Student 5133 had two writing scores above and four scores below his baseline value of 20 words written in three minutes. One score was slightly above and the other was considerably above the baseline. All four scores below the baseline were slightly below it.

In summary, 62% of Group HI's writing scores were above their baseline values and 38% were below the baseline values.

Table 20 presents the results of students in Group HI.

Table 20 Student writing data: Group HI

Student	Baseline fluency Score (first writing)	Fluency score (last writing)	Overall Gain/Loss (from first to last writing)	Weekly Mean Gain per writing
#4833	69	75	+6	+1.0
#4933	34	37	+3	+0.5
#5033	29	30	+1	+0.2
#5133	20	27	+7	+1.2
Group Mean	38.0	42.3	+4.3	+0.7
Median	29.5	34.5	+3.5	+0.5
Range	20 to 75	27 to 69	+1 to +7	+0.2 to +1.2

Group HI's baseline mean value was 38.0 words written in three minutes. The mean number of words written on the last prompt was 42.3. All students in Group HI made gains from the first to the last reading; however, these gains were not substantial. The mean gain by the group from the first to the last writing was 4.3 words. The mean gain in words written each week was 0.7.

Group MH

All of the writing scores for three of the students in Group MH were above their individual baseline values (see Figure 16). Student 5234 had two scores that were slightly above, one score considerably above, and three scores substantially above his baseline value 28 words written in three minutes.

Student 5334 had two scores slightly above and four scores substantially above her baseline value of 32 words written in three minutes.

Five of student 5434's scores were considerably above the baseline, with the sixth score substantially above it. The baseline value for this student

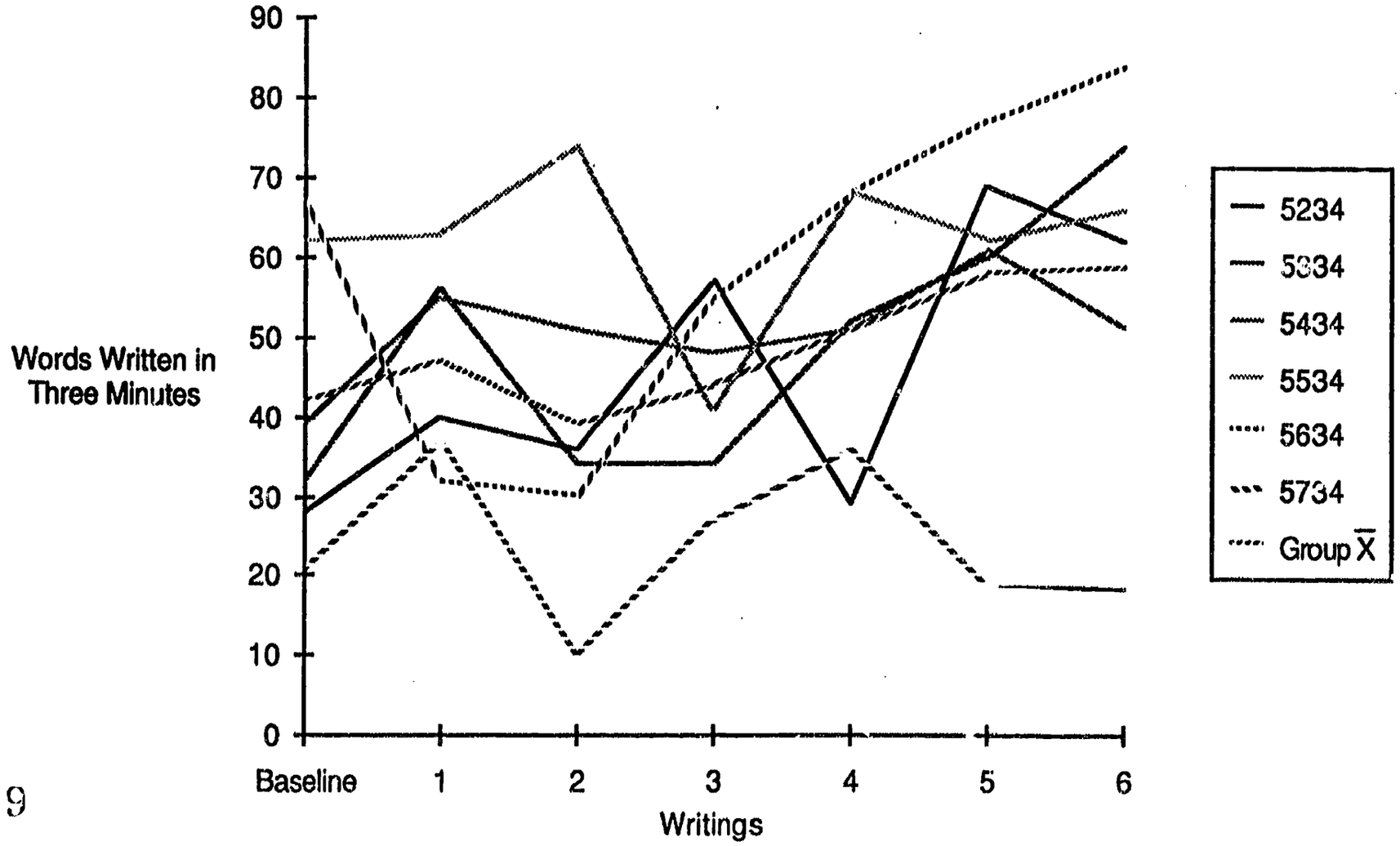


Figure 16. Writing: Individual students' number of words written in three minutes on each writing prompt (Cycle III; Group MH).

was 39 words written in three minutes.

Student 5534 had five scores above and one score below her baseline value of 62 words written in three minutes. Of the five scores above the baseline, four were considerably above it and one was substantially above it.

Student 5634 and student 5734 each had three writing scores above and three scores below their individual baseline values. The baseline value for student 5634 was 67 words written in three minutes, and for student 5734 the value was 21 words written in three minutes. Both students had one score slightly above and two scores considerably above their baseline values. Student 5634 had one score considerably below and two scores substantially below her baseline value. Student 5734 had two scores slightly below and one score considerably below his baseline value.

In summary, 81% of the writing scores in Group MH were above their individual baseline values and 19% of the scores were below the baseline values.

Table 21 presents the results of students in Group MH.

Table 21 Student writing data: Group MH

Student	Baseline fluency Score (first writing)	Fluency score (last writing)	Overall Gain/Loss (from first to last writing)	Weekly Mean Gain per writing
#5234	28	62	+34	+5.7
#5334	32	74	+42	+7.0
#5434	39	51	+12	+2.0
#5534	62	66	+ 4	+0.7
#5634	67	84	+17	+2.8
#5734	21	18	- 3	-0.5
Group Mean	41.5	59.2	+17.7	+3.0
Median	34.5	64.5	+14.5	+2.5
Range	21 to 67	18 to 84	-3 to +42	-0.5 to +7.0

The group baseline mean value was 41.5 words written in three minutes. The mean number of words written on the last prompt was 59.2. Five of six students in Group MH made gains, though not substantial, in terms of the number of words written in three minutes, with one student showing a slight loss. There was a mean gain of 17.7 from the first to last writing. The mean gain in words written each week was 2.95.

Overall, seventeen out of nineteen students in this Cycle III PAC group made gains in terms of the number of words written in three minutes from the first to the last writing. The mean values, across all four groups, were as follows: 1) the mean baseline value was 32.0 words written in three minutes; 2) the mean number of words written on the last writing prompt was 40.2; 3) the mean gain from the first to last writing was 8.2 words written in three

minutes, and; 4) the mean gain in words written each week was 1.37.

Further, the percentage of writing scores, across all four groups, above individual baseline values was 70%, with 30% of the scores below the individual baseline values.

Writing Task Difficulty Index.

Immediately after the completion of a writing prompt, the students indicated, on an evaluation form, whether they felt the prompt was an easy or a difficult one for them to write about and to state reasons for their response. This was done so that student perceptions regarding the difficulty of the task could be determined and to investigate the relationship between student perception of difficulty and actual fluency in writing.

Results are summarized in Table 22. The writing prompts are ranked on the basis of the mean number of words written in three minutes by all groups in Cycle III on each prompt. Also included are the percentages of students who rated the prompt as either easy or difficult.

The range in number of words written in three minutes was from 32.4 for the prompt of Interviews to 39.7 words for the prompt of Good Friends. The prompt that was designated as "easy" by the highest percentage of students was Landlords (also labeled as easy by the highest percentage of students in Cycle II). The two prompts rated as difficult by the highest percentage of students were Dream Date and Dear Abby. Rank order correlation between number of words written and perception of difficulty was -.45. Students on the average did not produce fewer words when the topic was labeled by the group as "difficult".

In almost every instance, the most commonly cited reason for a prompt to be rated as "easy" was that it was personal or that it required common sense.

The two main reasons for a prompt to be rated as "difficult" were poor spelling, or not enough time.

Table 22 Writing fluency and difficulty index results: Cycle III

Prompt	Mean number of Words Written	Easy	Difficult
1. Good Friends	39.7	67%	33%
2. Best Things	38.6	74%	26%
3. Dream Date	36.5	63%	37%
4. Dear Abby	35.8	63%	37%
5. New Identity	34.6	68%	32%
6. Landlords	33.9	84%	16%
7. Interviews	32.4	74%	26%

Reliability and Validity of the Measures

Reading

Reliability. The purpose for having the students read the six narrative texts at the beginning of the program was to establish reliability; that is, to determine if each student would perform similarly on each text at each of the three identified grade levels at one point in time. The students read each of the six texts consecutively and in one session. Texts were presented so that each student would begin reading with the easiest text. Two of the texts were fourth grade level, two were sixth grade level and two were eighth grade level, according to the Fry and SMOG readability formulae.

The selection reliability coefficients were as follows: .91 (fourth grade level narratives); .88 (sixth grade level selections), and; .92 (eighth grade passages). Student performance at each of the levels was highly consistent,

as indicated by the high coefficients.

Results of a repeated measures analysis of variance indicated that students performed significantly better ($F=89.19$, $p < .001$) on the fourth grade reading passages than on the sixth and eighth grade passages. Performance on the sixth and eighth grade passages appeared to be approximately the same (see Table 23).

Table 23 Passage reliability means and standard deviations

Passages	Mean	Standard Deviation
Fourth Grade	122.63	30.75
Sixth Grade	97.37	29.52
Eighth Grade	94.95	30.91

Criterion Related Validity. The students' pretest scaled scores on the reading comprehension subtest of the California Achievement Test (CAT), Level 18, were correlated with their mean correct words per minute (CWPM) totals on each of the passage readings obtained during the first week of the PAC Program. When the students' pre CAT scores were correlated with their mean CWPM totals on the fourth level texts, the resulting coefficient was .43. The resulting correlation between the pre CAT scores and the sixth grade level texts was .40. The pre CAT scores with the eighth grade level texts yielded a coefficient of .42.

The students' post CAT scaled scores were correlated with the students' correct words per minute (CWPM) totals on the last CBM reading. The resulting coefficient was .18

The students' posttest Woodcock grade equivalent grade scores were correlated with the students' scores (CWPM) on the last CBM reading. The resulting coefficient was 0.41.

The students' posttest scaled scores on the California Achievement Test (CAT) were correlated with a teacher rating of each student's reading level. This rating, or grade score, was assigned to each student by the teacher of the group in which the student was placed, prior to the administration of the posttest CAT. The resulting coefficient was .60. The students' correct words per minute (CWPM) totals on the last reading CBM were correlated with the teacher rating of each student's reading level. The resulting coefficient was .60.

Writing

Interrater Reliability. The number of words written (fluency) on each prompt were counted by two raters. The interrater reliability coefficient was .99 for each of the seven writing prompts.

Validity. The PAC students responded to a final writing prompt after completing the seven weekly prompts. This prompt was scored using a holistic scale with a range from 1 to 4. The two areas evaluated were ideas and sentence structure.

The students' idea scores were correlated with the number of words written on the last weekly writing prompt. The resulting coefficient was .32. Next, the students' sentence structure scores were correlated with the number of words on the last weekly prompt. The resulting coefficient was .11.

Evaluation

Reading

Decision Meetings. At two predetermined times during Cycle III, the

research associate met with each PAC teacher individually to discuss the progress of each of the students in their group. The meetings took place after the students had completed the third and sixth readings. At the meeting, the teacher and research associate looked at students' graphs to see how students were performing in relation to their personal aim line.

There were five possible decisions for the teacher to consider. One, the aim line could be left as it was and the readings at the appropriate level would continue as planned. Two, the aim line, or goal, could be modified. If this option was chosen, the mean of all of the previous data points was used to establish the beginning point of the new aim line. The goal was then increased by three correct words per minute from this new beginning point. Three, the teacher could modify or change the instruction for individual students in the group. Four, the level of reading materials could be changed. For example, the student could be asked to read texts at a lower reading level. The fifth option was an "other" category; the teacher had the option to suggest alternatives, if any of the other options were not appropriate.

Of the five possible options the only ones chosen by the teachers were to continue as planned or to modify the aim line. Two of the teachers commented that it was difficult to make any major changes such as to modify instruction or curricula, with so few data points (readings).

Teacher Survey. At the end of Cycle III the five teachers were asked to complete a survey that addressed a variety of topics (see Appendix B for teacher survey). The teachers used a four point rating scale to respond to each item. A rating of 4 was "excellent", a 3, "good", a 2 was "fair", and 1, "poor".

The teachers were asked to rate the usefulness of the aim line on the

student graphs, both for themselves and for their students. For themselves, aim line usefulness rating was 3.0, or "good". The mean rating of aim line usefulness for students, as rated by the teachers, was 3.20. This value falls within the "good" to "excellent" range. These results indicated that the teachers felt the aim lines were useful for their students and for themselves.

Next, the teachers were asked to rate the usefulness of the two conferences with the research associate for reflecting on the progress of the students in their group and for making decisions about the aim lines, instruction, test materials and so on. The mean of the usefulness rating for reflecting on the progress of the students in their group was 3.25. This value falls within the "good" to "excellent" range. The mean of the usefulness rating for making decisions about aim lines, test materials, instruction and so on was 3.50. This value also falls within the "good" to "excellent" range on the four point rating scale. These results suggest that, for these teachers, it was useful to have these conferences with the research associate as a means of monitoring and reflecting on their students' progress.

The teachers were then asked to rate whether the procedures used for both reading and writing were outlined clearly. The reading and writing procedures were rated separately. The mean rating for both the reading and writing procedures was 4.0, or "excellent". All of the teachers felt that the procedures were outlined clearly.

The teachers were also asked to rate how easily they could follow the procedures. The mean rating was 4.0, or "excellent". In assigning the highest possible rating, all of the teachers felt that the procedures were easy to follow.

Next, the teachers were asked to indicate the average amount of time they

spent with each student per reading session to share and discuss the student's graph, to obtain the CBM reading fluency measure, and to complete the data summary sheet that was submitted to the research associate after each week's reading. The average amount of time spent with each student per reading session was four and a half minutes.

The teachers were then asked to rate their group's general response to doing the reading and writing tasks. The mean for the reading task was 3.60 and the mean for the writing task was 2.25. The teachers perceived that the students were more receptive to the reading task than to the writing task.

The last question addressed the issue of whether the teacher would choose to use these reading and writing tasks next year, if given the choice. If the teachers had to administer and score the reading tasks themselves, four of the teachers would choose to use them and one would not. If they had someone to assist them in administering and scoring the reading tasks, four would choose to use the tasks and one (the same one) would not. The teacher who chose not to use the task next year felt that the reading task, as administered, was more appropriate for beginning readers requiring assistance with fluency. She stated that, "the assessment would be more sensitive to students at that [lower] level and be more helpful to the instructor."

All of the teachers, 100%, would choose to use the writing tasks next year, even if they had to administer and score them themselves.

Student Survey. At the end of Cycle III, the students were asked to answer questions on a student survey (see Appendix C for student survey). The survey was administered after their final reading task. The teacher read the questions and recorded the student's answers. A four point scale was used for this survey, with four being the highest rating and one the lowest.

The students were first asked whether they enjoyed doing the one minute readings each week. The mean was 3.50 on the four point scale. Eighty-nine percent of the students enjoyed the readings all or most of the time. The other 11% enjoyed the readings some of the time.

The students were asked whether they saw and discussed their personal graph before the reading each week. The mean was 3.32. Eighty-four percent indicated that they saw their graph all or most of the time. Eleven percent saw their graph some of the time and 5% reported that they never saw the graph.

Next, they were asked whether they felt that the aim line motivated them to try to achieve their weekly goal. The mean was 3.95. Ninety-five percent of the students felt that the aim line was motivating all of the time. The other 5% found the aim line motivating most of the time. This result is consistent with the results reported earlier on the teacher survey form regarding teacher perceptions of the usefulness of the aim line for the students. The teachers indicated that they felt the aim lines were very useful for their students.

The students were then asked how often they met their personal weekly goal. The mean was 2.84. The majority of the students, 74%, felt that they met their goal most of the time. Five percent felt they met their goal all of the time and 21% felt they met their goal some of the time. None of the students reported that they never met their goal.

When asked if these one minute readings helped them to improve their reading, 68% reported that they felt the readings helped a great deal and 32% felt that they helped quite a bit. The mean was 3.68 on the four point scale.

The students were asked the following three open-ended questions: 1) what they liked the best about the readings; 2) what they liked least about them

and; 3) what the purpose of the readings was.

Some students had difficulty reporting only one "best" thing, so they often reported more. Twelve different comments were made, with 25 comments made in all (see Table 24).

Table 24 Student comments about what they liked best about doing the one minute oral readings.

Comments	Number of students who made the comment
Looking at my graph and seeing the improvement.	4
Helped me to improve my reading.	3
Helped me to "speed up" my reading (fluency).	3
Helped me to see how fast I could read (fluency), without making mistakes (accuracy).	3
Forced me to practice reading.	2
Helped me with my vocabulary.	2
The teacher explained a bit about the story before I read it.	2
Liked to just read.	2
Helped me to read aloud without being shy.	1
Learned information from reading.	1
Helped me to comprehend.	1
Showed me where I made mistakes.	1

Seven students reported that there was nothing they disliked about the one minute oral readings. The most frequently mentioned negative comments were: (a) "being timed" when doing the oral reading (5 individuals), and (b) reading aloud (4 individuals) (see Table 25).

Table 25 Student comments about what they liked least about doing the one minute oral readings.

Comments	Number of students who made the comment
Being timed (made me nervous).	5
Making mistakes; reading out loud	4
Being interrupted from class.	1
When I did not reach my goal.	1
Not finishing the whole story.	1

Again, when it came to making comments about the purpose of the readings, the students had difficulty limiting themselves to one comment. As a result, nine different comments were made, with 26 made in all (See Table 26).

Table 26 Student comments about the purpose(s) of the one minute readings.

Comments	Number of students who made the comment
To build my reading skills/knowledge.	6
To see how we were at reading.	5
To see how fast we could read (fluency).	5
To see our improvement.	4
To help the teacher see how she could help us improve our reading.	2
To help me build my reading confidence.	1
To evaluate what we had learned in class each week.	1
To see how fast (fluency) we could read and how clearly (accuracy) the words came out.	1
To see what my reading level was.	1

Overall, student responses to the survey questions were positive.

Chapter V

Findings, Conclusions, and Recommendations

The overall purpose or this project was to develop and test curriculum based measures and procedures with adults enrolled in an adult basic education program. The specific objectives were to: (a) develop and test curriculum based measures and procedures with students in Cycle I; (b) evaluate the curriculum based measures and procedures that were modified as a result of Cycle I findings, and use in Cycle II; and (c) implement and test the use of the modified reading and writing measures and procedures in Cycle III, investigating the validity, reliability, and feasibility of these curriculum based measures. The information below summarizes the findings of the entire year's efforts.

Findings

Reading

1. The most efficient and feasible measure of reading performance was the repeated oral reading procedure (1 minute readings), conducted once a week. This measure enabled teachers to chart and monitor the performance of adults consistently and efficiently. Several different procedures (retellings, vocabulary definitions, 1 minute silent readings) were investigated; however, because of the ease of administering the oral reading procedure, in addition to the evidence that oral reading fluency measures correlate highly with other measures of reading performance (Fuchs, 1986; Fuch, 1988), the one minute oral readings became the primary procedure used in the program.

2. Alternate form reliability coefficients calculated during Cycle II indicated that performance on narrative material (.94) was more reliable than performance on expository material (.68). We suspect that unfamiliarity with

topic and text structure in expository material may have affected consistency in performance on the expository material, since readability was controlled on all passages.

3. Alternate form reliability of the oral reading fluency measures on narrative passages, established by having students read two selections at three different levels, was high (Cycle III). Coefficients were .91 on fourth grade passages; .88 on fifth grade passages, and .92 on eighth grade passages. Results of a repeated measures ANOVA indicated that students performed significantly better ($F=89.79$, $p < .001$) on the fourth grade passages. Performance on the sixth and eighth grade passages appeared to be approximately the same.

4. Interrater reliability, calculated using percent agreement between two raters, was also high (number of words read correctly in one minute, 98.8%; total number of words read in one minute, 99.7%).

5. Criterion related validity coefficients of the oral reading fluency measures proved somewhat inconsistent. Correlating performance (scaled scores) on the CAT reading comprehension subtest, level 18, administered prior to program admission, with the first oral reading fluency measure yielded coefficients of .57 (Cycle I), .24 (Cycle II), and .43 (Cycle III) on fourth grade passages. Correlating performance on the CAT posttest with the last oral reading measure yielded coefficients of .62 (Cycle I), .49 (Cycle II), and .18 (Cycle III). The correlations between the grade equivalent scores on the Woodcock Word Recognition Subtest (posttest) and final oral reading fluency measures were .41 (Cycle I), .12 (Cycle II), and .41 (Cycle III).

Correlating a teacher estimated reading level at the end of Cycle III for each student with the last oral reading fluency measure, yielded a validity

coefficient of .60. (The correlation between the post CAT scores and teacher grade also yielded a coefficient of .60).

The inconsistent validity coefficients between the standardized comprehension measures and the CBM's may be caused by several factors: (1) the small sample size; (2) the restricted range in reading performance of these individuals on both the standardized measures and the CBM's and; (3) the fact that these procedures may be measuring different aspects of the reading processes. This is certainly an area requiring further study.

6. The aim line, used in the final cycle, proved to be an important and useful part of the CBM procedures. Both teachers and students responded positively to the aim line. Teachers and students commented on the motivational aspect of the aim line. Teachers felt the aim line could be used effectively to make instructional decisions. The decision to establish an aim line based upon a gain of 3 words per reading and then to modify the line as the student progressed through the program, proved to be a useful one. (The three words gain per reading was determined based upon the actual average gain of students per reading sample in the first two cycles).

7. Teachers found the oral reading fluency measures to be informative and easy to use. The average amount of time spent with each student per testing session (in Cycle III) was [illegible]r and a half minutes.

8. Students were also receptive to the measures: they generally enjoyed doing the one minute readings and most felt that these one minute readings helped them to improve their reading. Students appreciated seeing their graphs. The two most frequently mentioned negative comments related to the "timing" aspect of the measures and concerns about reading aloud.

9. In Cycle III, seventeen of the nineteen students (89%) evidenced gains

on the oral reading measures. In Cycle III, the mean gain of the group on the CBM's was 17.0 CWPM. Using the CAT posttest scores, 16 of 19, or 84% of the students in this cycle evidenced gain. The mean gain on the CAT in this cycle was a grade equivalent score of 1.6.

In Cycle II, 13 of 15 (87%) of the students evidenced gain on the CBM's and 9 of 15 (60%) on the CAT posttest. The mean gain of this group on the CBM's was 10.6 CWPM. In this cycle, mean gain on the CAT was a grade equivalent score of .5.

Writing

1. The writing fluency procedure (3 minute writing sample) proved to be an efficient and feasible means of monitoring the writing of students in the program. Changes in procedures from Cycle I to Cycle III included: (1) establishment of a one-minute think time for students, before actual writing began; (2) refinement and modification of topics so that they were of interest to students and also related to students' experiences and needs.

2. Interrater reliability was extremely high, with a reliability coefficient of .99 between two raters based upon the number of words written for each of the writing prompts.

3. Since no formal measures of writing or grammar were given in this adult literacy program, the only measure of criterion validity calculated was that between the fluency measure (CBM) and a holistic scoring calculated on a final untimed writing sample. The correlation between the final fluency scores (CBM's) and the idea scores obtained on the untimed prompt was .32. The correlation between the final fluency scores and sentence structure on the untimed prompts was .11.

4. The aim line, instituted in the final cycle, was highly valued by both

teachers and students. The aim line was increased by two words per writing based upon average gain of students in previous cycles.

5. All teachers indicated that the writing procedure was helpful and that they would continue to use it in the future. However, teachers did indicate that students were not as receptive to the writing task as they were to the reading task.

6. Seventeen of the nineteen students in Cycle III (89%) evidenced gains on the writing fluency measure. Overall, the mean gain for the group in Cycle III was 8.2 words/3 minutes.

Thirteen of the fifteen students in Cycle II (87%) evidenced gain on the writing fluency measures. The mean gain of the group in Cycle II was 12.7 words/3 minutes.

7. The rankings of students' perception of the difficulty of each prompt correlated negatively with the rankings of the writing samples, based upon number of words written. Overall the results suggested that there was no relationship between the group's perception of the difficulty of each prompt and the group's actual performance.

Conclusions

Reading

1. The one minute oral readings, which were administered once a week, were an efficient and reliable means of measuring and monitoring reading performance of adults in a basic adult literacy program, with adults who read from beginning reading level through eighth grade level. Materials used throughout the project were at the estimated instructional level of the group of students, and results suggested that this procedure of using instructional level material, rather than higher level material, should be continued to

minimize student frustration and feelings of anxiety. The aim line was also an important aspect of the procedures and was effective as a means of monitoring student progress and as an indicator of the need to modify instruction.

Program Evaluation. The oral reading fluency measures were one of several measures used to assess the effectiveness of the program. Students showed evidence of gains on both the CBM measures and the standardized measures, and the CBM measures were particularly sensitive to gains in the short term program. However, at this stage, the CBM's should really only be considered as one indicator of program evaluation.

Writing

1. The three minute writing samples, which were administered once a week, were useful for monitoring learning of students. Topics selected should be those of interest to the students and should be based upon their experiences. An unexpected finding was that the difficulty of the writing task, as perceived by students, related negatively to number of words written. Overall, there was no relationship between the group's perception of topic difficulty and actual performance.

Program Evaluation. The writing fluency measure were one of the measures used to assess program effectiveness. Students in this project showed evidence of making gains, although not substantial, on the CBM procedure for writing. However, at this stage, the CBM's should really only be considered as one indicator of program evaluation.

General

Results of this project suggested that CBM measures of reading and writing can be useful in an adult basic education program because of their feasibility

and reliability in monitoring the performance of adults. They provided a built-in mechanism for tracking performance. Moreover, they were extremely motivational for adult students who could track their performance over the course of the program. Finally, the procedures provided a supplement to the current evaluation tool, the standardized tests given as pre-post measures. However, as useful as these CBM measures were, they are only one means of monitoring performance. They should not dictate program emphasis or approaches (i.e., if a student is poor in oral fluency, there should be much more practice in oral reading. The teacher must focus on the instructional needs of the students (decoding, vocabulary, or comprehension), with the expectation that growth in any area of reading will be reflected in the oral reading performance of the students.

Discussion

Results of this project indicated that the curriculum based measures in reading and writing were effective in helping teachers monitor the ongoing progress of the adults. Teachers and students responded favorably to the measures; teachers indicated that they would continue to use the procedures in future programs. Yet these procedures cannot be used unless there is time allotted for administration and training provided for staff as to their use.

Time for administration. Given that the CBM's are repeated and frequent measures, time had to be allocated within each week of instruction for administration and analysis of results. In this project, the Project Coordinator assisted with the actual administration and interpretation of the measures. Moreover, the Project Coordinator assumed responsibility for organizing the materials that would be used for testing. Any program that implemented CBM's would need to plan carefully so that materials could be

selected (perhaps before the program began), and to make decisions about how and when CBM's would be administered.

Moreover, if the program were one in which teachers worked with groups, various management decisions would need to be considered (what other students will do when one student is being tested). The use of an aide would certainly facilitate testing in such a program.

Staff Development. Instructors who are not familiar with CBM's could benefit from staff development sessions so that they have some understanding of the rationale for such measures, ideas for selecting materials, coding oral reading, establishment of aim line, and use of the graph for modifying instruction. The User's Guide developed as part of this project should be a helpful document in staff training.

Recommendations

1. There is a need for continued research regarding the validity of CBM measures with adult populations, both the reading and writing procedures. A larger and more hetergeneous sample of adults would be helpful in assessing the validity of these measures.

2. There is a continued need to investigate the viability of these and similar procedures with other groups of adult students reading at higher levels and in different types of programs. Now that procedures have been streamlined and some baseline data have been collected, there is much opportunity to implement these procedures in various programs and to share results.

3. Investigations regarding criteria for establishing and modifying the aim line, for both the reading and writing measures, should be conducted. In this project, criteria for establishing the aim line were determined based

upon average group gains (an arbitrary figure that provided a starting point). However, research in which various criteria for establishing aim lines are studied would provide important information to those interested in using curriculum based measures as a means of monitoring individual student progress.

4. Research is needed on whether students can be accurately "placed" into reading materials, using results from curriculum based measures. Establishment of norms regarding adult performance on oral reading materials would be helpful in making determinations about placement. At the present time in adult programs, placement decisions based on the results of a comprehensive battery of tests may be too time consuming, thus reducing instructional opportunities. Other alternatives include making placement decisions based on a single standardized test score or using CBM's by themselves, or as a supplement to other forms of testing that are used for placement decisions. However, the validity of using any of these procedures for placement in adult programs needs to be established.

5. The use of CBM's as an indicator of the effectiveness of a program for adults should continue to be studied. Because many adult programs are of short duration, and since standardized test results do not tend to be sensitive to gains in such short periods, CBM gains may prove to be helpful to educators as an alternative or supplement to standardized indicators of effective programming.

6. Continue to investigate other reading procedures for obtaining curriculum based measures. Although the oral reading samples were highly effective, there are several concerns: (1) negative reaction by adults to reading aloud, and (2) need for individual assessment. The use of the

computer to obtain reading data might also be investigated.

7. Continue to investigate writing procedures other than fluency for obtaining curriculum based measures, particularly with adults who have more sophisticated writing skills than the adults in this program.

PART II

INSTRUCTOR'S GUIDE

Guide to Using Curriculum Based Measures of Reading and Writing in an Adult Literacy Program

The procedures and materials provided in this user's guide were developed based on results of a 310 project funded by the Pennsylvania Department of Education during the 1988-89 year. These curriculum based measures (CBM's) were implemented in an adult literacy program (PAC) at the University of Pittsburgh.

Adult educators are encouraged to utilize these approaches, to study their effectiveness in monitoring progress of students and to suggest modifications, based upon experiences with adults reading at various levels and with different instructional needs. Although the CBM's were used with groups of students, these procedures would be particularly useful to those working with adults on an individual basis. Although it may take some time to select and organize the materials necessary to utilize these procedures, once materials have been selected, the actual implementation of the procedures is efficient and useful.

The guide is divided into two sections: (1) directions and guidelines for using curriculum based procedures for monitoring progress of students in an adult literacy program; and (2) suggestions/ideas for implementation developed by teachers in the PAC project. Samples of the materials and charting procedures used in the program are in Appendices D to J.

Monitoring Progress of Adults in Reading and Writing

The need for more efficient and reliable instruments to determine the ongoing progress of adults has been cited as a high priority for those interested in adult basic education. Curriculum based measures provide one alternative to the standardized tests generally used in most programs.

Curriculum based measures are short tasks administered at frequent intervals to permit instructors to determine the effectiveness of their teaching and to make necessary modifications in instruction. These procedures tend to be sensitive to growth in performance over relatively short durations, an important characteristic for adults who are eager to learn as much as possible in a short amount of time. The two curriculum based tasks described below are: (a) oral reading fluency (number of words read correctly in one minute); (b) writing fluency (number of words written during a three minute writing task).

Reading. The procedure used to monitor growth in reading was a series of one minute oral readings administered once a week to students on an individual basis. Specific directions and guidelines for implementing these procedures are described below.

1. Determine levels at which students will read. The adults in PAC read materials that were at their instructional levels (the level at which the teacher was working with students). We suggest beginning with materials at that level (to provide initial success and build confidence), and then to change levels, if necessary, as the student progresses through the program. The instructional level can be determined from the results of a standardized test, an informal reading inventory, or on the basis of teacher judgment and diagnostic teaching. Once this level has been determined, obtain passages written at that level.

2. Selection and preparation of materials. Although material can be selected from any source, the following guidelines were found to be helpful.

   a. Select materials from those available in the literacy program so that they are of interest to adults. Moreover, there are many materials of high

interest, low readability, that often can be used for these measures. Narrative (story type) materials provided more consistent results than did expository or information type passages in this project.

b. Select passages from various graded materials; otherwise, calculate the readability of the passage using the FRY readability formula (Fry, 1968).

c. Randomly select passages of at least 300 words from these materials for the oral reading procedures. Make a copy for teacher coding or prepare a coding format sheet such as the one in Appendix D. This format was used so that teachers could calculate the number of words read easily and efficiently.

d. Read through the passages and prepare a short purpose statement that will give the student some prior information about what he/she will be reading and help the student relate the text material to his/her prior knowledge. (e.g., This selection is about a man, who, when he pulls into a truck stop for a coffee, does not see what he expects to see).

3. Procedures for administration. Follow these procedures each time a student reads orally.

Materials Needed: text material for student (marked so that the student knows where to begin, or retyped) (see Appendix E); copy of text material for teacher or format sheet (see Appendix D for sample); stopwatch.

a. Show each student his/her graph before the student begins reading so that student has a sense of what was accomplished during the previous reading.

b. Read instructions to students. "I'm going to have you read one selection aloud each week. You will read the selection for one minute

only. It is important that you read as quickly and as carefully as you can. I will be timing you so that we can keep track of your reading and to help me plan my lessons better."

c. Read the prompt that you have developed for the student for that specific passage.

d. Point to the first word of the selection (on the student's copy) and tell the student to begin reading.

e. Begin timing as soon as the student begins to read. The student reads for one minute only.

f. On the teacher copy of the text, put a line though words that the student has difficulty with or omits. (Teachers may also code miscues as to types for more diagnostic information). For additional information about coding, see Appendix F).

g. If a student spends 5 seconds on a word and is still unable to decode it, pronounce the word so that the student can continue reading.

h. When students have completed reading, commend them for their efforts (Good job, Sue!; You really tried hard on that passage, Jim). You may also wish to provide feedback about the student's performance by giving an estimate of what the student's score (CWPM) was.

4. Graphing the results. Calculate the number of words read and the number of miscues made. The correct word per minute is calculated by subtracting the number of miscues from the total number of words read. (The student read 45 words and substituted 4 words in the text, resulting in a score of 41 CWPM). (See Appendix F for suggestions on how to count miscues, and Appendix G for recording student reading data). The CWPM is placed on a graph (Appendix H). The graph provides an important means of sharing information with the student

and charting progress.

5. Determine an aim line. One of the important parts of the procedure is the establishment of an aim line, or goal, for each student. The aim line provides a standard by which each student can determine whether he/she is making progress in the program. To establish an aim line, first obtain a baseline score for each student by calculating the average of at least the first two readings. Specific procedures are:

a. Establish baseline level (student read 82 and 85 correct words per minute on the first two readings; the baseline, therefore, was 84 correct words per minute).

b. Determine the number of one minute readings to be administered during the program. There should be at least one reading a week, and if possible, two.

c. Determine the final goal. (In order to establish an aim line quickly, given the 10 week program, and based upon the performance of adults in PAC, we calculated our aim line based upon an average gain of 3 words per reading). Example of calculation:

Step 1: Baseline (average of first two readings) 82 + 85 = 84 CWPM

Step 2: Number of readings after baseline readings: 10

Step 3: Multiply estimated gain/per readings* x number of readings to obtain estimated total gain (3 x 10 = 30)

Step 4: Add baseline plus estimated total to obtain final goal (84 CWPM + 30 = 114 CWPM).

*One could calculate estimated gain/per reading for each student based upon the average gain of the first three readings (e.g., 82, 85, 83 = +1 estimated gain/reading) and calculate the aim line based upon these data. The critical

point is that the aim line can be modified based upon the ongoing performance of the individual student.

d. Draw the aim line on the graph and share with the student. Explain that this goal is increased by 'x' number of words a reading (thus the slanted aim ' and that it may change as instruction progresses.

Use the aim ... ne for monitoring instruction. If students are making steady progress toward their goals, the aim line can be left as is, and instruction can proceed. However, if students are not making steady progress toward their weekly goals (two consecutive readings fall below the aim line), several options can be considered.

a. The aim line, or goal, can be modified. In this case, calculate the average gain, (using all of the previous data points) to establish the beginning point of a new aim line.

b. The teacher could modify or change the instruction for that student.

c. The level of reading materials could be changed. For example, the student could be asked to read a lower or higher level text.

d. The teacher may also consider other alternatives, based upon experiences with the student.

7. Sharing the results. After the first reading, show students their graphs and explain the aim line. It is important for students to see what they have accomplished and to have a goal. (A strategy used in the project was to calculate quickly the CWPM and share this information with the student immediately after the reading, and then to explain that this was an "estimated point" and that the student would see the "actual" score just before the next reading. This immediate feedback was appreciated by the students.)

8. Additional option. Discuss with students any pattern of incorrect

responses of miscues. In this way, the readings can be used for instructional purposes. Moreover, the adults appreciated immediate feedback about words that they experienced difficulty with during the readings.

Writing. The procedure recommended for use is a 3 minute writing sample, administered at least once a week. The writing sample can be administered to small groups of students or on an individual basis. The procedure includes a one minute "think" time during which students are given an opportunity to mentally organize their thoughts. The criterion used to assess growth is fluency or number of words written in three minutes.

1. Selecting prompts. Select a number of topics that are of interest to your students and that relate to experiences that they may have had. (A list of prompts successful in this project are listed in Appendix I.

2. Procedures for administration. These procedures are used each time a student does a writing sample.

Necessary materials: stopwatch for timing, writing prompt, pen or pencil.

a.Read the following instructions to student(s). "I am going to have you do some writing. The writing will only take three minutes. I will read the writing task that you are to write about to you as you follow along on your paper. The goal is to see if having you write in this manner will help you to improve your writing. I would encourage you to try to write as much as you can about the topic. If you want to use a word that you are not sure of how to spell, simply leave a blank or put down the first letter and leave the rest blank. Demonstrate for students on a board or a sheet of paper.

The boy jumped over the _____.

The boy jumped over the f_ _____.

Please do not worry about your spelling, I am most interested in two things: your ideas and how many words you can write in three minutes.

b. Give the student the writing prompt and read the prompt aloud as students follow.

c. Give students one minute to think about the prompt. Encourage the student to make notes on his/her paper if she/he wishes. This preparation is done individually by each student.

d. When told to begin writing, the student writes as much as he/she can in three minutes.

e. When 3 minutes are over, tell students to stop writing and collect the prompts. You may choose to discuss the topic and to share orally the students' responses to the prompt.

3. Graph the results. Calculate the number of words written and place this number on a graph (see Appendix J). (Fluency was determined by counting the number of words written; there was no effort to look at correctness of spelling. In this project, when students left "blanks" for words they did not know how to spell, these were not counted as words written). Again, the graph provided an important means of sharing information with the student and charting progress.

4. Determine an aim line. To establish an aim line, first obtain a baseline score for each student by averaging the results of the first two writings. Specific procedures follow:

a. Determine baseline level (average number of words written on first two writing samples).

b. Determine the number of 3 minute writings to be administered during

the program. There should be at least one writing sample administered each week.

c. Determine the final goal. In order to establish an aim line quickly and based upon the performance of adults in PAC, an aim line was calculated based upon the average gain in writing fluency of 2 words/per writing sample. (Example of calculation).

Step 1: Establish baseline: Average of first two writings (19, 22 words per 3 minute writing = baseline of 21).

Step 2: Number of writings after baseline = 10

Step 3: Multiply estimated gain/per writing* times number of writings after baseline to obtain estimated total gain (2 x 10 = 20).

Step 4: Add baseline plus estimated total gain to obtain final goal (21 + 20 = 41)

*One could calculate estimated gain per writing for each student based upon the average gain of the first three writing samples (e.g., 19, 22, 23 = +4 estimated gain/writing) and calculate the aim line based upon these data. The critical point is that the aim line can be modified based upon the ongoing performance of individual students.

d. Draw the aim line on the graph and share with the student. Explain that this goal is a starting point and that it may change as instruction progresses.

5. Use the aim line for monitoring instruction. If students are making steady progress towards their goal, the aim line can be left as is, and instruction can proceed. However, if students are not making steady progress towards their weekly goal (two consecutive writing measures fall below the aim

line), several options can be considered by the teacher.

a. The aim line, or goal, can be modified. In this case, the average gain of all of the previous data points can be used to establish the beginning point of a new aim line.

b. The teacher could modify or change the instruction for that student.

c. The teacher may also consider other alternatives, based upon his/her experiences with the student.

6. Share the results. After calculating the writing fluency score, share the graph with the student and explain the aim line. It is important for students to see what they have accomplished.

7. Additional option. The writing samples can be used to obtain additional diagnostic information or to provide probes for instruction. As a diagnostic tool, the teacher can observe various spelling or grammatical errors that may be addressed at another time in the program. Instructionally, the prompts can be used to lead into other writing activities related to a specific topic. Moreover, the topics of the prompts can be used for discussion after the writing samples have been completed. Students may share their responses and discuss differences and similarities. Teachers may also, once they have calculated the words/3 minutes, ask students to write more about that specific topic.

Suggestions/Ideas for Implementing Curriculum Based Procedures in an Adult Literacy Program.

The ideas and suggestions below were contributed by the PAC teachers on the basis of their experiences with implementing CBM's with adult students during the 1988-89 school year. The practical nature of their suggestions should be

helpful to those interested in using these procedures, either with individuals or with a group.

Reading Procedures

Before Administration

1. Read directions very carefully before administering materials. This is important so that you are familiar with the materials before you introduce them to students.

2. Prepare materials ahead of time. If possible, put students' names and the date on each paper to save class time when you are actually working with students. Have everything needed (timer, student reading page, response sheets for instructor, graph).

3. Read instructions to the student (which should include the purpose for the CBM's) and prompt for the passage the student will read.

4. Read passage to become familiar with the reading before instructing students to begin. It helps with coding.

5. Show students the goal line prior to each reading. We found the graphs to be extremely motivating with students.

6. Try to relax the student with casual conversation before the reading. This gives the instructor a chance to see each student individually. Then if it is necessary, a longer conference time could be set up at a later date. It's helpful to touch base with each student at a personal level at least once each week.

7. Be flexible with testing schedule - we all have bad days. We had students who would come to class influenced by what had happened at home that morning. In some cases it was necessary to reschedule them to read the following day.

8. Choose high interest reading material.

After Reading

1. After first reading, show students their graph and explain the goal line. It is really important for students to see how they have done and to have a goal. It's especially important that they see the graph right before they read, not a day before.

2. Code as the student reads and then calculate correct words per minute (CWPM). Share this information with students to give them an idea of where their point would be on the graph. Be sure to explain that this is an estimated point and that you will show them next week exactly how they did. This immediate feedback is appreciated by students.

3. Discuss with students their incorrect responses. Often students would want immediate feedback about words they had stumbled over during their reading.

4. If time permits, figure the CWPM point for the graph at the end of each reading so students can see if progress was made.

5. Be open to adjusting the aim line after, if necessary. It will defeat the purpose of the goal line if students are continually way above or below.

Suggestions for implementation with large group or whole classroom.

1. During reading class the teacher can test five or six students each day while the others are working independently. This could be done at the very beginning of reading class. Show students their graphs before reading new passages each week. This helps motivate students to read more accurately.

2. An aide could tape record student readings and cross off any reading errors that the student might make during the reading. They could also put a small "c" where a self correction has been made. Then the teacher could use the aide's material or do a miscue analysis after the class period. This may save class time but could cause additional work for the teacher. If the teacher

wishes to see only the readings and what errors were made, taping the session may be an option.

3. Teachers could team teach with another instructor during reading class. One could be responsible for the reading lessons while the other administered the CBM's. They could alternate this schedule each week, sharing the preparation for CBM's.

4. Plan a lesson in which the students will work in groups or individually after an initial introduction of the lesson. Once the class is working independently and the teacher has circled the room to answer questions, students can be pulled one at a time for administering the CBM's.

Writing Procedures

1. If presenting a writing prompt with a large class, be sure (if the written prompt is not given to each student), to write it on the board or have it on an overhead. Students need to see and hear the prompt.

2. Develop prompts that will be of interest to students. Be aware of grade level, outside interests, and subject matter.

3. Show students their goal line before they write each week.

4. Remind students each week that you are not checking their spelling and that they can leave a blank if they are unsure of how a word is spelled. Encourage them to attempt spelling all words.

5. Ten minutes should be set aside each week, if possible on the same day, so the students get into the routine of knowing when the writing sample will be administered. This should help ease the apprehension that some feel about timed writings. The time it took to calculate results for the writing samples was usually minimal, depending on how much the students wrote.

6. Writing prompts can be administered to small groups or whole classes. The

method chosen will not affect class time instruction because the writing samples can be used as a lesson.

7. The prompt can be used for discussion after the writing sample. For example, the students wanted to discuss what changes they would make to an apartment if they were the landlord. They wanted to see what their classmates had said and they wanted to share their ideas about what a landlord should change and why.

8. Prompts can also be used to lead into other writing activities, either individual or group activities. With the prompt about the apartments and the landlord, students could write letters and work on the appropriate format for them.

9. These timed writings should only be a part of the whole writing program. We recommend a timed writing should be admininstered once a week in addition to a more complete writing program. Having students write under a time limit can create pressure and it may take students time to become accustomed to this task. They should learn to do this in addition to other forms of writing.

10. If students are really concerned about misspelled words, they could begin to keep a spelling log.

11. Students could keep a daily journal. Writing enables students to become more attuned to their experiences and emotions on paper. In other words, writing helps them to find and express their "inner voice".

References

Bean, R.M. & Johnson, R. (1987). The Pittsburgh Adult Competency Program: A model for effective literacy programming. Adult Literacy and Basic Education, 11 (1), 1-12.

Deno, S.L., Marston, D. & Mirkin, P. (1982). Valid measurement procedures for continuous evaluation of written expression. Exceptional Children, 48, 368-371.

Deno, S., Marston, D., Mirkin, P., Lowry, L., Sindelar, P. & Jenkins, J. (1982). The use of standard tasks to measure achievement in reading, spelling, and written expression: A normative and developmental study, (Research Report No. 87). Minneapolis, MN: University of Minnesota, Institute for Research on Learning Disabilities. (ERIC Document Reproduction Service No. ED 227129).

Deno, S.L., Mirkin, P.K. & Chiang, B. (1982). Identifying valid measures of reading. Exceptional Children, 49, 36-45.

Fry, E. (1968). A readability formula that saves time. Journal of Reading, 11, 513-516, 575-578.

Fuchs, L.S. (1988). Relations among basic skill measures. Unpublished manuscript..

Fuchs, L.S. (1986). Monitoring the performance of mildly handicapped students: Review of current practice and research. Remedial and Special Education, 7, 5-12.

Fuchs, L. & Deno, S. (1981). The relationship between curriculum-based mastery measures and standardized achievement tests in reading. (Reseach Report No. 57) Minneapolis, MN: University of Minnesota, Institute for Research on Learning Disabilities.

Harmon, D. (1985). Turning illiteracy around: An agenda for national action. New York: Business Council for Effective Literacy.

Proceedings of the Roundtable Conference (1986, May). Symposium conducted in State College, PA.

Webster, L.P. (1986). A national survey of evaluation procedures in adult basic education. Proceedings of the ' Annual Convention of the International Reading Association. 1-5.

APPENDIX A

Student Information

Appendix A

Student Number	Cycle	Group	Race	Sex	Pre IRAS N	Pre IRAS E	Pre CAT Scaled Score	Post CAT Scaled Score	Pre Woodcock	Post Woodcock	Total CWPM Last Reading	Overall Gain (CWPM)	Mean Gain Per Reading (CWPM)
01	1	1	1	1	1	1	411	423	2.2	2.6	77	46	15.3
02	1	1	1	2	1	1	318	377	3.0	2.4	45	23	7.7
03	1	1	1	1	2	2	394	426	3.9	4.2	154	75	25.0
04	1	1	1	1	1	1	395	448	4.6	4.1	156	38	12.7
05	1	1	1	1	2	1	476	436	3.4	2.9	126	39	13.0
06	1	2	1	1	2	2	465	520	3.6	5.6	119	37	12.3
07	1	2	1	1	2	2	478	487	7.6	7.1	179	68	22.7
08	1	2	1	1	1	1	426	459	3.1	3.2	99	46	15.3
09	1	2	1	1	3	3	487	555	5.3	4.3	138	68	22.7
10	1	2	1	1	2	1	377	440	4.7	4.7	89	-20	-10.0
11	1	3	1	1	3	3	487	505	5.5	4.4	110	10	3.3
12	1	3	1	1	3	2	478	440	5.0	6.2	130	36	12.0
13	1	3	1	1	3	3	496	520	9.6	7.4	177	1	0.3
14	1	3	1	1	3	3	487	520	4.3	4.2	111	8	2.7
15	1	3	2	1	3	3	504	542	12.9	12.9	175	6	2.0
16	1	3	1	2	3	2	487	505	3.5	3.4	87	27	9.0
17	1	4	1	1	3	3	504	536	7.6	6.9	141	-29	-9.6
18	1	4	1	1	3	3	512	601	12.9	6.3	225	-26	-8.7
19	1	4	1	1	3	3	496	520	6.1	5.5	104	-127	-63.5
20	1	4	1	2	3	3	448	453	7.2	8.6	72	-30	-15.0
21	1	4	3	1	3	3	426	543	11.8	12.9	129	-41	-13.7
22	1	4	2	2	3	3	504	453	3.8	3.9	70	-22	-7.3
23	2	1	1	2	1	1	411	340	5.2	2.9	28	-11	-1.8
24	2	1	1	1	2	1	426	487	4.0	3.4	109	11	1.8
25	2	1	1	1	2	2	487	426	5.8	4.9	111	17	2.8
26	2	1	1	2	-	-	459	440	1.6	1.8	-	-	-
27	2	2	1	1	2	2	496	528	5.8	5.8	104	15	2.5
28	2	2	1	1	3	3	505	543	4.5	4.7	151	8	1.3
29	2	2	1	1	2	2	496	469	3.4	4.4	63	-13	-2.2
30	2	2	1	2	3	3	513	528	4.8	6.4	95	21	3.5
31	2	3	1	2	3	3	504	496	5.2	6.9	1:0	15	2.5
32	2	3	1	1	3	3	448	453	6.0	4.7	119	33	5.5
33	2	3	1	1	3	3	496	535	7.8	8.6	166	31	5.2
34	2	3	1	1	3	3	512	536	5.2	4.1	164	6	1.0

Student Number	Cycle	Group	Race	Sex	Pre IRAS		Pre CAT Scaled Score	Post CAT Scaled Score	Pre Woodcock	Post Woodcock	Total CWPM Last Reading	Overall Gain (CWPM)	Mean Gain Per Reading (CWPM)
					N	E							
35	2	3	1	2	3	3	487	505	5.6	4.3	133	32	5.3
36	2	4	1	1	3	3	528	513	5.5	6.1	59	4	0.7
37	2	4	1	2	3	3	512	529	6.7	8.3	70	2	0.3
38	2	4	1	2	3	3	513	528	4.6	5.8	63	11	1.8
39	3	1	1	1	3	3	394	513	4.2	4.7	117	21	3.0
40	3	1	1	2	2	2	478	476	3.3	3.1	76	6	0.9
41	3	1	1	2	1	-	299	395	2.8	3.6	80	-3	-0.4
42	3	2	1	1	2	2	436	496	6.9	8.3	138	49	7.0
43	3	2	1	1	3	2	465	504	4.2	4.4	120	10	1.4
44	3	2	1	1	2	2	377	465	5.6	6.2	117	10	1.4
45	3	2	1	2	3	3	476	551	3.9	4.8	99	12	1.7
46	3	2	1	1	3	3	409	505	1.7	3.8	93	14	2.0
47	3	2	1	2	3	3	496	521	3.8	4.2	102	16	2.3
48	3	3	1	1	3	3	469	574	6.7	6.7	181	61	0.7
49	3	3	2	2	3	3	465	504	4.3	3.7	66	-5	-0.7
50	3	3	1	1	3	2	426	448	5.1	4.9	112	22	3.1
51	3	3	1	2	3	3	453	476	3.5	-	77	6	0.9
52	3	4	1	2	3	3	476	478	7.0	9.4	210	32	4.6
53	3	4	1	1	3	3	512	555	8.6	4.8	115	6	0.9
54	3	4	1	1	3	3	487	559	7.0	12.1	107	11	1.6
55	3	4	1	1	3	3	478	476	7.1	5.3	162	42	6.0
56	3	4	3	1	3	3	496	543	8.8	6.2	123	13	1.9
57	3	4	1	2	3	3	448	549	11.8	12.9	112	2	0.3

Number = Student Identity Number
Cycle = When Student was enrolled during PAC Program (either 1, 2 or 3)
Group = PAC Group Placement
1 = Beginning Reading (BR)
2 = Low Intermediate (LI)
3 = High Intermediate (HI)
4 = Middle to High School (MH)
Sex = 1 = Female 2 = Male
Race = 1 = Black 2 = White/Caucasian 3 = Otner
IRAS = Interactive Reading Assessment System (Reading Inventory)
N = Narrative E = Expository
CAT = California Achievement Test
Woodcock = Woodcock Reading Mastery Tests: Word Identification Subtest
CWPM Totals = Curriculum Based Reading Measures (CBM's)

APPENDIX B

Teacher Survey

Appendix B

CBM TEACHER SURVEY

Teacher _____ Date ____/____/____

Use the following rating scale when you respond to each item:

1 = Excellent 2 = Good 3 = Fair 4 = Poor

1. Rate the USEFULNESS of the AIM LINE on the individual progress charts (graphs):

   a) for the teacher (you!) 1 2 3 4

   b) for your students 1 2 3 4

   Comments: _____

2. Rate the USEFULNESS of the two conferences with the Research Associate (Adelle) for:

   a) reflecting on the progress of the students in your group 1 2 3 4

   b) making decisions about aim lines, instruction, materials etc. 1 2 3 4

   Comments: _____

3. Rate whether the CBM procedures were OUTLINED CLEARLY:

   a) Reading 1 2 3 4

   b) Writing 1 2 3 4

   Comments: _____

Appendix B

4. Rate whether the CBM procedures were EASY to follow:

   a) Reading 1 2 3 4

   b) Writing 1 2 3 4

5. What was the AVERAGE amount of time spent with each student per reading session?

   a) Sharing the graph: ____ minute(s)

   b) Reading time: ____ minute(s)

   c) Completing the DATA SUMMARY sheet: ____ minute(s)

   Total Minutes per Student per Session: ____ minute(s)

6. Rate your group's GENERAL response to DOING these tasks (an overall group rating):

   a) Reading 1 2 3 4

   b) Writing 1 2 3 4

7. If you were (are) going to teach in the PAC Program next year, would you CHOOSE to use the CBM's if:

   Reading

   a) you had to administer and score them yourself ___ Yes ___ No

   b) you had a helper to assist you ___ Yes ___ No

   Writing

   a) you had to administer and score them yourself ___ Yes ___ No

   Please make comments about this question (especially if you marked "No" for any of the items): _____

APPENDIX C

Student Survey

Appendix C

Student Survey

Name _____ Date ____/____/____

Directions: Check (✓) the statement that best tells how you feel.

1. I enjoyed doing the one minute readings each week.

____ ALL of the time
____ MOST of the time
____ SOME of the time
____ NONE of the time

2. I got to see my personal graph BEFORE I read each week.

____ ALL of the time
____ MOST of the time
____ SOME of the time
____ NONE of the time

3. The AIM LINE or my GOAL each week motivated me to want to reach my goal.

____ ALL of the time
____ MOST of the time
____ SOME of the time
____ NONE of the time

4. I REACHED my personal goal:

____ ALL of the time
____ MOST of the time
____ SOME of the time
____ NONE of the time

5. The one minute readings that I did each week helped me to improve my reading:

____ a GREAT deal
____ QUITE a bit
____ a LITTLE
____ NOT AT ALL

Appendix C

6. What did you like the BEST about doing the one minute readings each week?

7. What did you like the LEAST about doing the one minute readings each week?

8. What do you think was the PURPOSE of doing these one minute readings each week?

CBM Project
Apr13/88

APPENDIX D

Coding Format Sheet (Teacher Copy)

Appendix D

Teacher/Group _____

Student's Name _____

Date ___/___/___

Self-Correction Tally

INTRODUCTION TO STUDENT: This selection is about a man who, when he pulls into a truck stop for a coffee, does not see what he expects to see.

Whenever I get sleepy at the wheel, I always stop for coffee. This time, I was 16
driving along in western Texas, and I got sleepy. I saw a sign that said GAS EAT, so 34
I pulled off the road. It was long after midnight. I expected a place like most of the 52
rest — where the coffee tastes like copper and flies never sleep. 63

What I found was something else. The tables were painted and clean. They looked 77
as if nobody ever spilled ketchup on them. The counter was spick-and-span. Even the 93
smell was okay. Really. 97

The man behind the counter was the only person in the diner. I judged him to be 114
about forty years old. His hair was just starting to get gray above the ears. I sat 131
down at the counter and ordered coffee and apple pie. Right away he got me feeling sad. 148

I have a habit: I divide people up into two groups — winners and losers. This 163
guy behind the counter belonged to the group of people who mean well; they can't do 179
enough for you. But their eyes have this gentle, faraway look, and they can't win. You 195
know — with their clean shirts and their little bow ties? It makes you sad just to 211
look at them. Take my advice, though. Don't feel too sad for them. 224

Level: 4th _____✓/_____# Wds Read _____%

S/C: _____ Subs: _____ Insert: (P) _____ (Wd) _____ Omissions: _____

(Narrative)

Taken from: Points, New Directions In Reading, Houghton-Mifflin Co.(1986), pp. 83-84.

APPENDIX E

Student Text

Appendix E

Whenever I get sleepy at the wheel, I always stop for coffee. This time, I was driving along in western Texas, and I got sleepy. I saw a sign that said GAS EAT, SO I pulled off the road. It was long after midnight. I expected a place like most of the rest — where the coffee tastes like copper and flies never sleep.

What I found was something else. The tables were painted and clean. They looked as if nobody ever spilled ketchup on them. The counter was spick-and-span. Even the smell was okay. Really.

The man behind the counter was the only person in the diner. I judged him to be about forty years old. His hair was just starting to get gray above the ears. I sat down at the counter and ordered coffee and apple pie. Right away he got me feeling sad.

I have this habit: I divide people up into two groups — winners and losers. This guy behind the counter belonged to the group of people who mean well; they can't do enough for you. But their eyes have this gentle, faraway look, and they can't win. You know — with their clean shirts and their little bow ties? It makes you sad just to look at them. Take my advice, though. Don't feel too sad for them.

APPENDIX F

Miscue Coding Sheet

Appendix F

CODING SHEET

SUBSTITUTIONS

* If a student says a word incorrectly, put a line through the word. Write the word that the student substitutes above the mispronounced word.

...I am to ~~strive~~ starve with...

...and instill this ~~pride~~ praise in...

* Count each proper name miscue only once; all other substitution miscues get counted each time.

OMISSIONS

* Circle the word or the part of the word that the student leaves out.

...the other promise(s)...

* Each word or word part that is omitted is counted as one miscue.

...I am (to) strive with...

INSERTIONS

* If the student adds a word or a part of a word to the text, write in the addition.

...and sniffed it to see...

* Categorize the insertions as either PARTIAL or WHOLE WORD.

...a strip of potato s skin ...

* Count only the PARTIAL insertions in the error count, but record the number of WHOLE WORD insertions.

Appendix F

SELF-CORRECTIONS

* For any word that the student corrects, put a small © above the word(s).

...the flower ~~bloomed~~ blewed © in the garden...

* When counting miscues, do not count self-corrections as errors; count as a word read correctly.

REMINDER:

The SUBSTITUTIONS + OMISSIONS + PARTIAL INSERTIONS = the difference between the NUMBER OF WORDS READ CORRECTLY and the NUMBER OF WORDS READ.

eg. 30 ✓/36 words read Difference = 6 Therefore, substitutions + omissions + partial insertions will total 6.

CBM Project
June 1988

APPENDIX G

Data Summary Sheet

Appendix G

DATA SUMMARY: CYCLE III

Teacher/Group _____ Date ___/___/___

Student's Name _____

Selection: _____

ACCURACY SCORE

_____✓/_____ # Words Read = _____%

MISCUE INFORMATION

_____ Self-Correction(s)

_____ Substitution(s)

Insertion(s)

_____ a) Partial

_____ b) Whole Word

_____ Omission(s)

TIME: 1 Minute (60 Seconds)

RATE

a) _____ Words per Minute (WPM)

b) _____ Correct Words per Minute (CWPM)

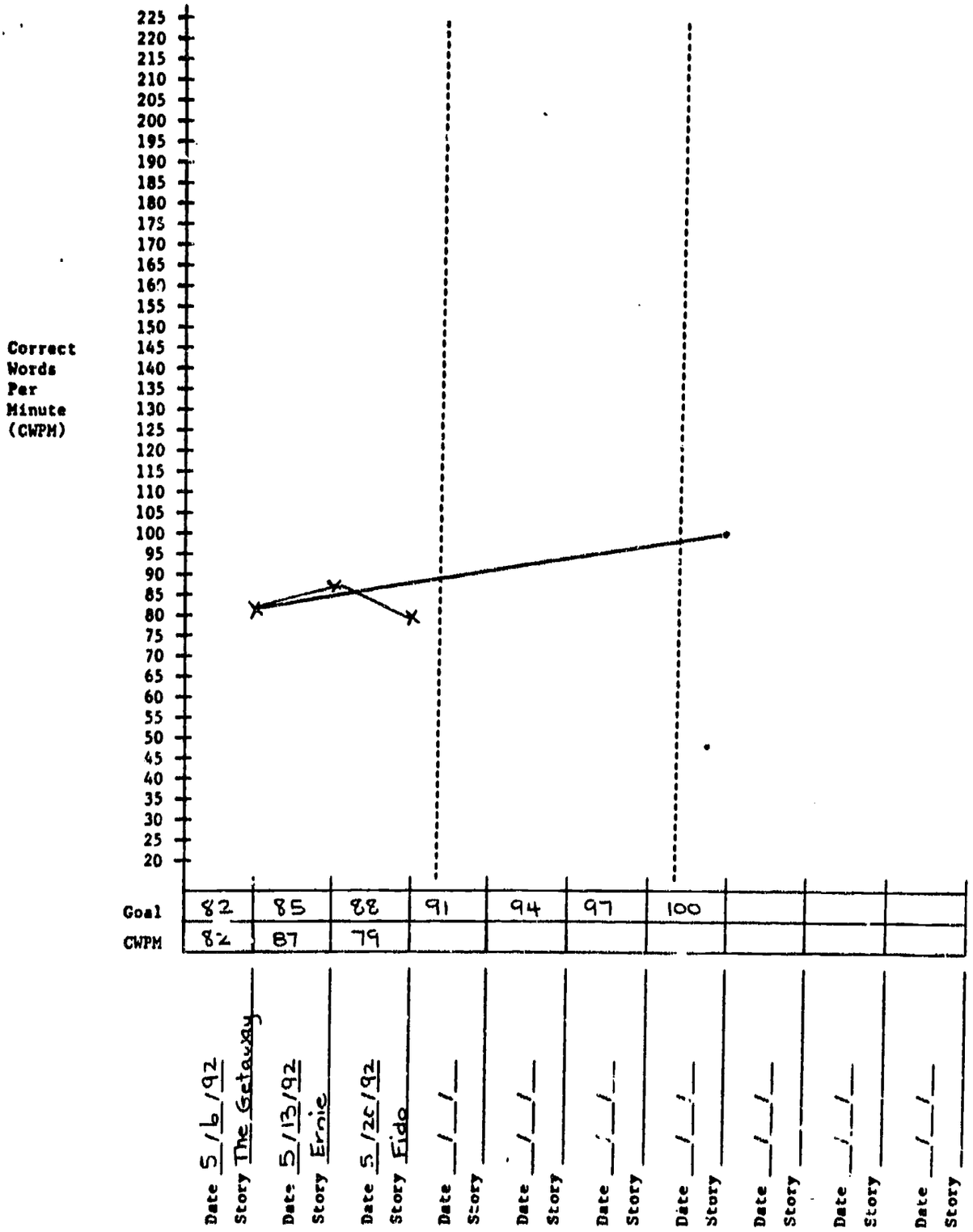
CBM Project
Jan14/88

APPENDIX H

Student Reading Graph

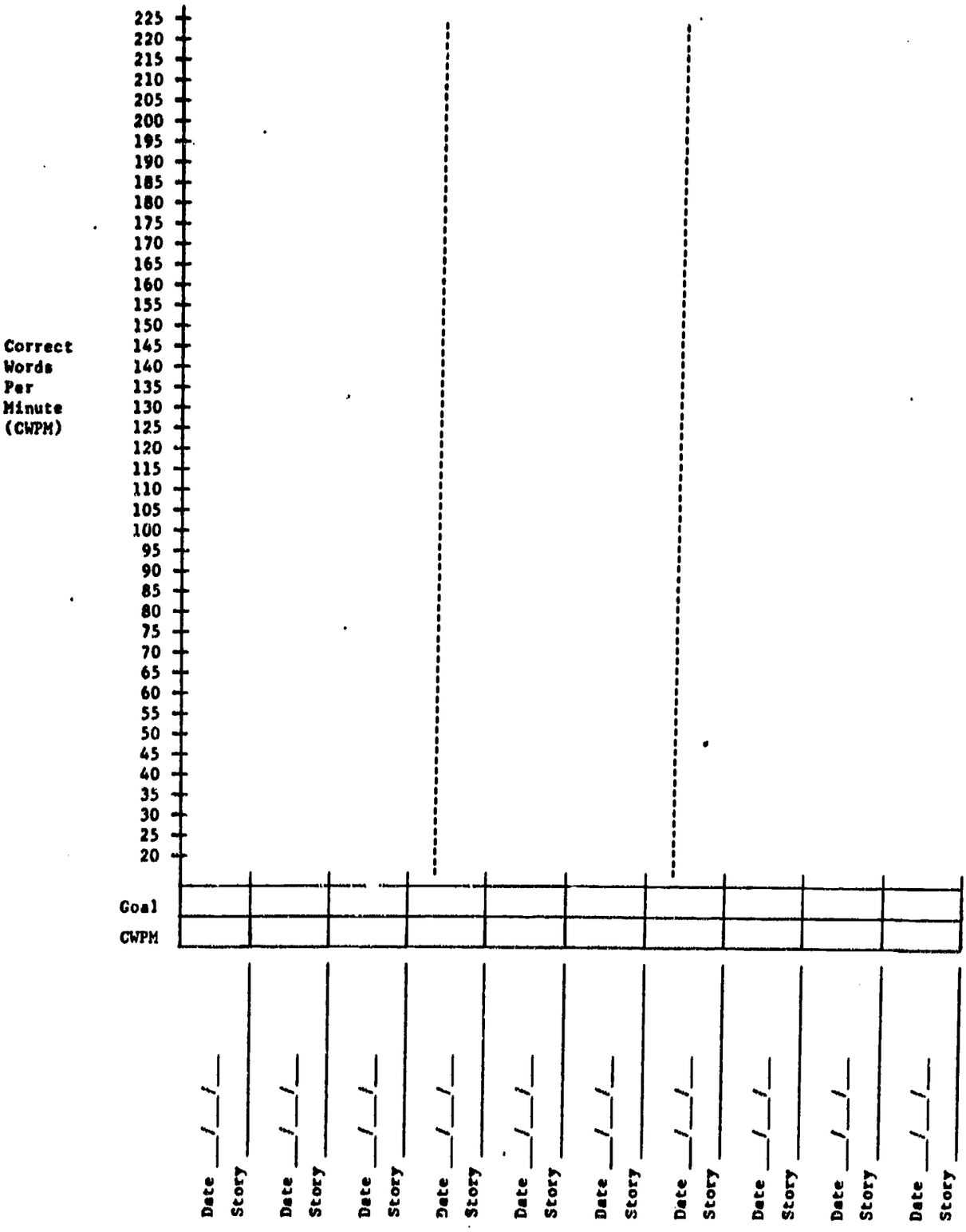
Appendix H

NAME _____



Appendix H

NAME _____



APPENDIX I

Writing Prompts

Appendix I

CYCLE III WRITING PROMPTS

Dear Abby

You have just read a "Dear Abby" column. In response to a letter from one of her writers from Pittsburgh, Abby argues that SMOKING SHOULD NOT BE ALLOWED in public places such as hospitals, restaurants, libraries, hallways is public buildings, buses or banks. Tell whether or not you AGREE or DISAGREE. Explain why you agree or disagree.

"Dream Date"

If you could have a date with ANYONE, who would it be? Tell why you would like to have a date with this "dream" person. Tell where you would go or what you would do on your date.

Landlord

As of November 1, you have just become the new landlord of an older apartment building. The building needs to be painted inside and out; the toilets do not work properly; the air conditioners are old and do not work; the heating system works occasionally; and the building's security locks do not work. You tenants are very unhappy. What TWO things would you repair first. Tell why.

Interviews

You have been applying for jobs and one day you receive a call from an employer who may be interested in hiring you. As you know, it is very important to make good first impressions at interviews. Therefore, what kinds of things do you think are important in order to help make a good first impression? Explain why.

Appendix I

Good Friends

Do you have (or have you had) a good friend? Describe WHY your friend is or was special. If you do not have or have not had a good friend, then describe the qualities that you would "look for" in a person with whom you might want to become friends.

The "Best" Thing

Tell about the BEST things that have ever happened to you in your life. Then, describe why they were the BEST things ever to have happened to you.

New Identity

If you could be ANYONE for 24 hours.... who would you choose to be? Then, describe why you chose to be that person. Also, tell what you would do as that person.

APPENDIX J

Student Writing Graph

Appendix J

NAME _____