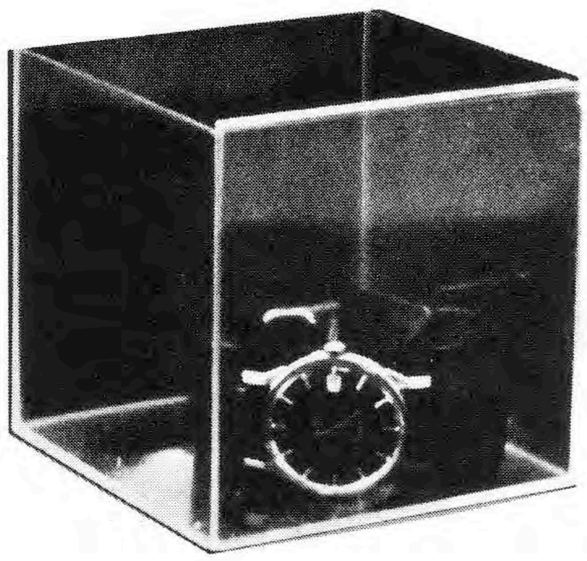


Aims—Growing and Sharing

ERIC HAUGHTON

How do you know when a child has really mastered a basic skill? Or when he can be successful at a more complex task? Eric Haughton explained the derivation and importance of setting carefully selected aims for children to make sure they can progress at their own rates. These decision points on the precision teaching charts mark proficiency levels in the skills youngsters need to master before they begin the reading, writing, and math curricula of our elementary schools.

In Jordan, J.B., and Robbins, L.S. (Eds.). Let's Try Doing Something Else Kind of Thing: Behavioral principles and the exceptional child. A report from the Invisible College Conference on Application of Behavioral Principles in Exceptional Child Education, March, 1971. Arlington, VA: The Council for Exceptional Children, 1972.

AIMS AND ACCOMPLISHMENT

☐ Suppose there was a land in which there were no hills and no apparent sky. Would there be explorers? In our world, man has always travelled to discover what is on the other side of hills, to follow a constantly receding horizon. It is a truism now to say man climbs mountains because they are there; they provide a challenge and an easily recognizable aim. The Matterhorn, Mt. Ranier, Fugii, have all been climbed, and finally Everest was conquered in 1953. Only 16 years later, man has walked on the moon—which is roughly 40,000 times the distance to the top of Everest. Some "step for mankind"!

When we establish aims precisely and clearly, and set out to achieve them, we do accomplish our goals.

Man's imagination has taken him from earthly steps to "stepping" at around 20,000 miles per hour. Now we are discussing manned flights to other celestial destinations. Apparently, when we establish our aims *precisely and clearly* and set out to achieve them, we do accomplish our goals, often creating new benefits to man in the process, like the hundreds of new humane developments from the space program. The imagination of man succeeds remarkably in providing a way to accomplish an *agreed-upon* aim.

Specifying and reaching a goal is not necessarily an end in itself, however. Among our many mountains, we need to order priorities. Only if aims are chosen *carefully* can their achievement greatly improve human welfare and happiness.

When we cannot alter events, we aim at accurate forecasts.

Unfortunately, man cannot always alter events and conditions; we must work within certain limits. In these cases, we aim instead at accurate forecasts, achievable through *careful and continuous measurement.* Weather satellites, for example, take continuous readings and report their findings regularly. Their aim is not to change weather, but to improve our ability to forecast natural, inevitable events that can bring calamity or joy to millions. At the very least, we can be suitably prepared.

THE ORIGIN OF PERFORMANCE BASED AIMS

☐ Careful specification of precise, personalized educational aims for our youth began to emerge as a significant classroom planning dimension in 1969. These aims serve the teacher and student much the way the mountain range attracts the explorer; they need to be mastered before one can go on, and they provide self-satisfying indications of progress and accomplishment. But the educational aims I'd like to explore with you now are not arbitrary. They can and should be personalized to suit the individual student, exceptional or regular, younger or older, or in any class placement.

Educational aims are not arbitary. They can and should be personalized to fit the individual student.

The data that I will share have come from many classrooms in the American Northwest. Since we are daily educational practitioners, none of us has made detailed or exhaustive studies. Yet our daily data tie together so coherently and so tightly that we want to share these findings so you too can begin to develop the detailed guidelines that are required for more careful and precise educational planning. This type and style of planning for each youngster's growth

recognizes his uniqueness and guarantees his success at each educational step in the climb to personal proficiency in living a full and rewarding life.

I would like to give you a brief rundown on how we came upon the idea of setting performance based aims, and then go into a more detailed account by discussing specific curriculum guidelines.

As part of a remedial reading project she conducted, Bonnie Jean Young had youngsters practice phonetically predictable family words and monitored their progress on the daily behavior chart. Her new idea was to keep youngsters on a practice list until they reached a certain frequency of correct responses before they advanced to the next list. The method achieved some success. I remember this as one of the first suggestions that a particular point on the daily behavior chart could or ought to be used as a *decision point, an aim.*

The new idea was to keep youngsters on a practice list until they reached a certain frequency of correct responses.

At about the same time, Ann and Clay Starlin provided some interesting data on aim selection. Clay's data indicated that when correct oral reading frequencies were less than 50 per minute, emphasis on learning opportunities (such as word substitutions, mis-said letters, omissions) produced little gain in charted performance. Learning opportunities (or errors) failed to decelerate and correct performance failed to accelerate. However, if we concentrated on accelerating correct words to at least 50 per minute *before* attempting to work on decelerating learning opportunities, youngsters showed marked improvement. Once they reached the aim (of 50 per minute), they easily doubled to 100 words per minute along with a marked deceleration of errors. Here, we had stumbled on the idea that certain frequencies are important to *that* frequency's growth, and to growth in a related frequency.

Meanwhile, Ann noticed that first grade youngsters who progressed more rapidly than others said sounds from a list of letters at 40 per minute correct or above, while those below that frequency experienced considerable difficulties. A little later, Ann remarked that some youngsters took a long time to chart their own performance. And, guess what? Slow charters took longer than youngsters who could put dots on a chart rapidly in a timed practice session! We had forgotten—or should I say, we had yet to *realize*—the crucial importance of specifying *relatively high performance aims* before expecting youngsters to be competent and independent.

Specifying relatively high performance aims is crucial to student competence and independence.

☐ You have to walk before you run. The toddler has to be "sure and steady" on his feet before we feel confident in letting him go on his own. And in order to leave earth's gravity for a jaunt to the moon, velocity must exceed 300 miles per minute—or you orbit. It is clear that determining the proper aim which indicates competence is of crucial importance.

CHILDREN SHOW US THE IMPORTANCE OF AIMS

Determining which aim indicates competance is crucial.

In 1969 and into the early 1970's, data vital to the determination of aims came in from teachers experimenting in their classrooms. Jan

Running projects by the calendar produced overall drops in performance.

Skuce's youngsters, working on math facts, spent a week reviewing the one-times table, then moved on to the next. Although the students usually accelerated within each week, (that is, doing the material on one table), the overall pattern showed rapid deceleration. Running a project by the calendar produced overall drops in performance, thus *weakening* the youngsters rather than producing the intended strengthening (Figure 1). Jan changed her plan so the youngsters stayed on a multiplication table until they reached a specific, predetermined aim and they experienced consistent academic growth!

Marie Gaasholt's data (Figures 2 and 3) clearly showed that a youngster performing above 30 digits per minute in math computations easily advanced to progressively more complex math assignments. On the other hand, a youngster performing below 20 digits correct per minute steadily decelerated as he progressed to more complex assignments. (Charts of learning opportunities have been eliminated here, not because they are not important, but because we are focusing our attention on acceleration aims.)

Then came the clincher. Jim Trapp, principal of Twin Oaks School in Eugene, Oregon, and Ken Moore, who taught sixth grade there, and I were going over the data from Ken's class. We were perplexed that some of the youngsters simply could not reach what seemed to be reasonable aims in math. Learning opportunities (errors) were low, so we had no major deceleration targets. Yet several youngsters showed no acceleration. They got daily practice but failed to reach the aim of correct digits written, easily attained by many sixth graders.

Why would youngsters who know the content fail to accelerate their frequency of problems correct?

What would you have done? We were stumped. Clearly, they knew the content but were unable to accelerate their frequency of problems correct. The youngsters presented no major motivational problems, since their growth in other areas appeared satisfactory. Perhaps they were lacking a basic skill we hadn't charted. Do you have an idea? Please write in your ideas here for behaviors that you might have checked: _____

Let's see how your solution compared to the one (of several possibilities, of course) that we tried. One hunch was that if writing arabic digits was slow, computation performance would be retarded too. When we checked, we discovered that among these students, digits written correctly measured less than 20 per minute. This explained why they failed to reach their aims and also gave us the key to the remediation procedure. To increase the youngsters' *performance potential* in math computation, we accelerated digits written correctly, and then their math computation data accelerated!

INCREASING PERFORMANCE POTENTIAL

☐ If your suggestions above were on target, you not only are well on your way to understanding aims, but you also have a good idea of the importance of necessary, prerequisite tool skills. Fortunately,

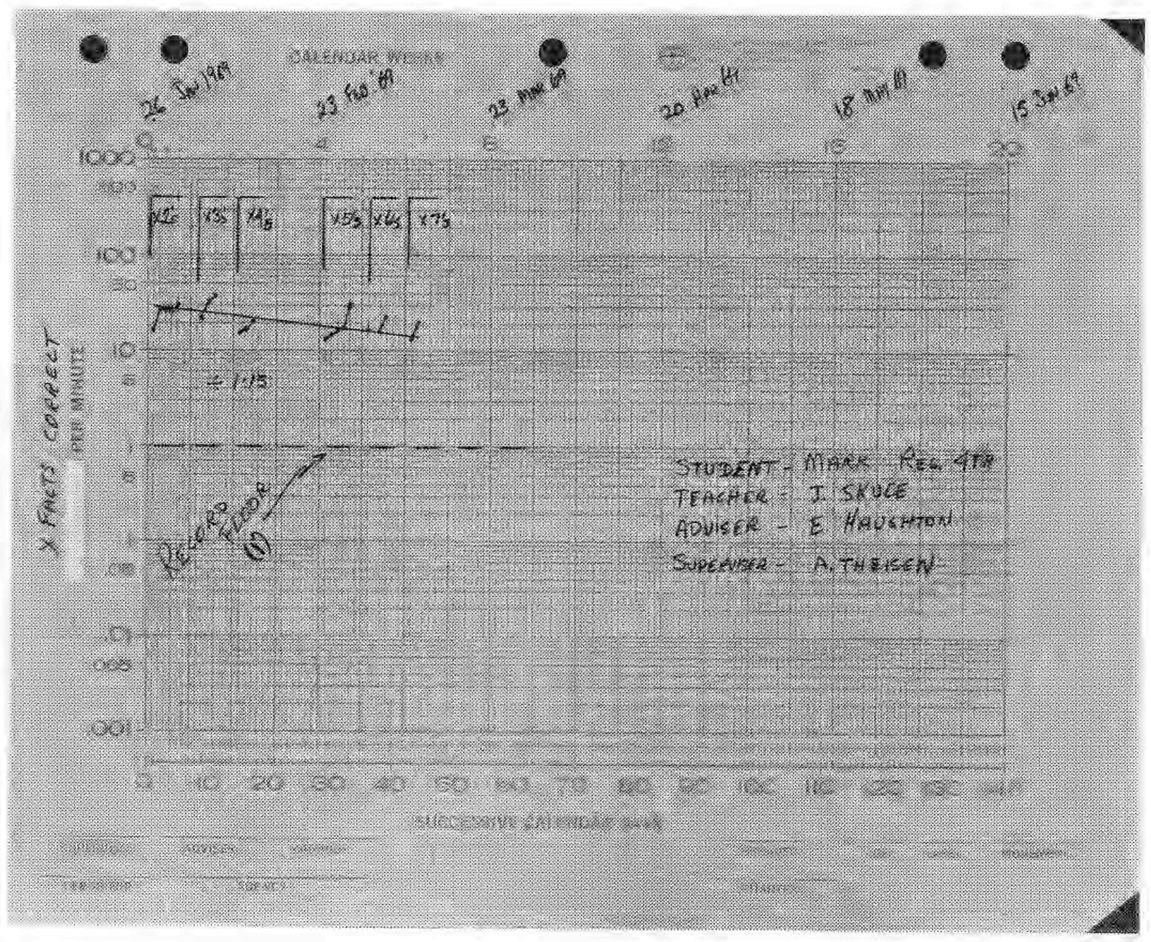


Figure 1. Teaching by the calendar produces deceleration.

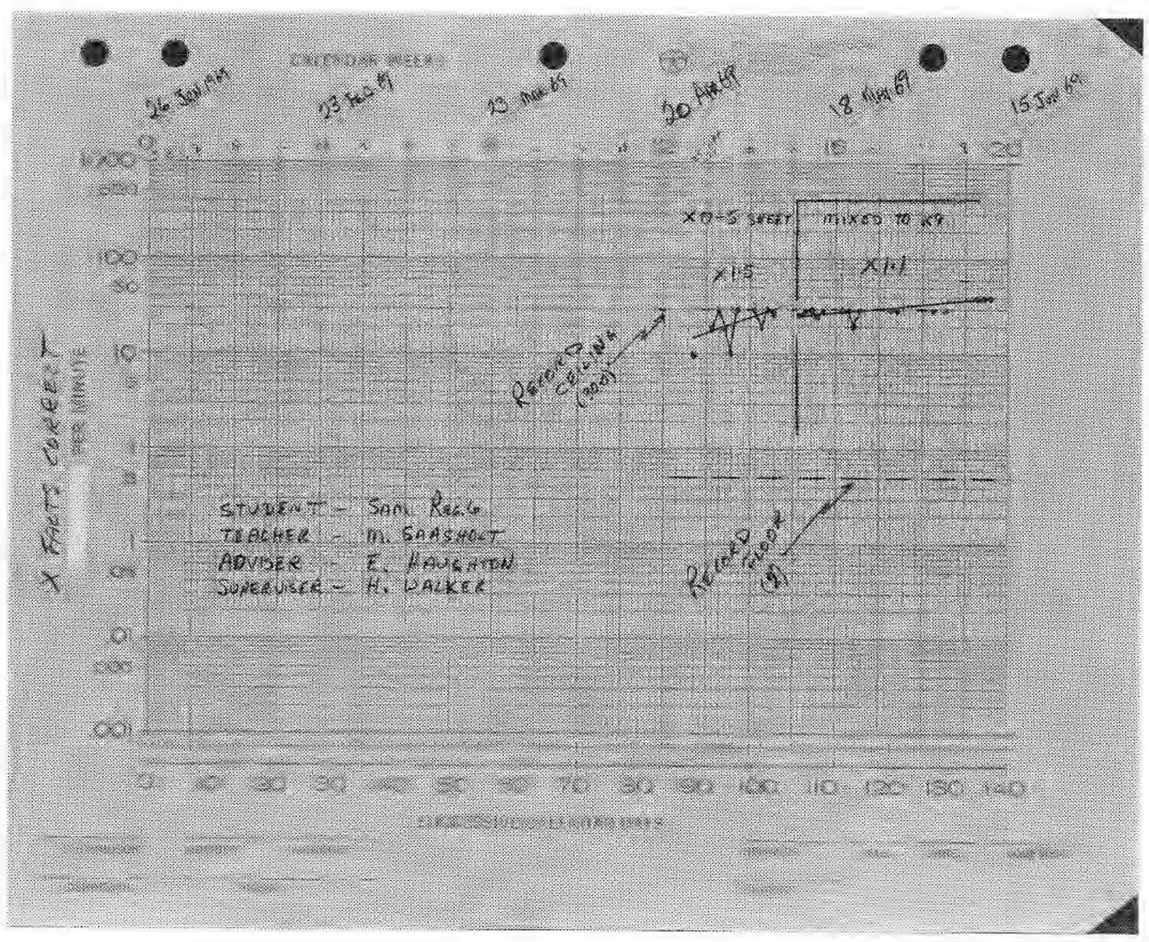


Figure 2. Sam performs 30 correct per minute and continues to accelerate through more complex curriculum.

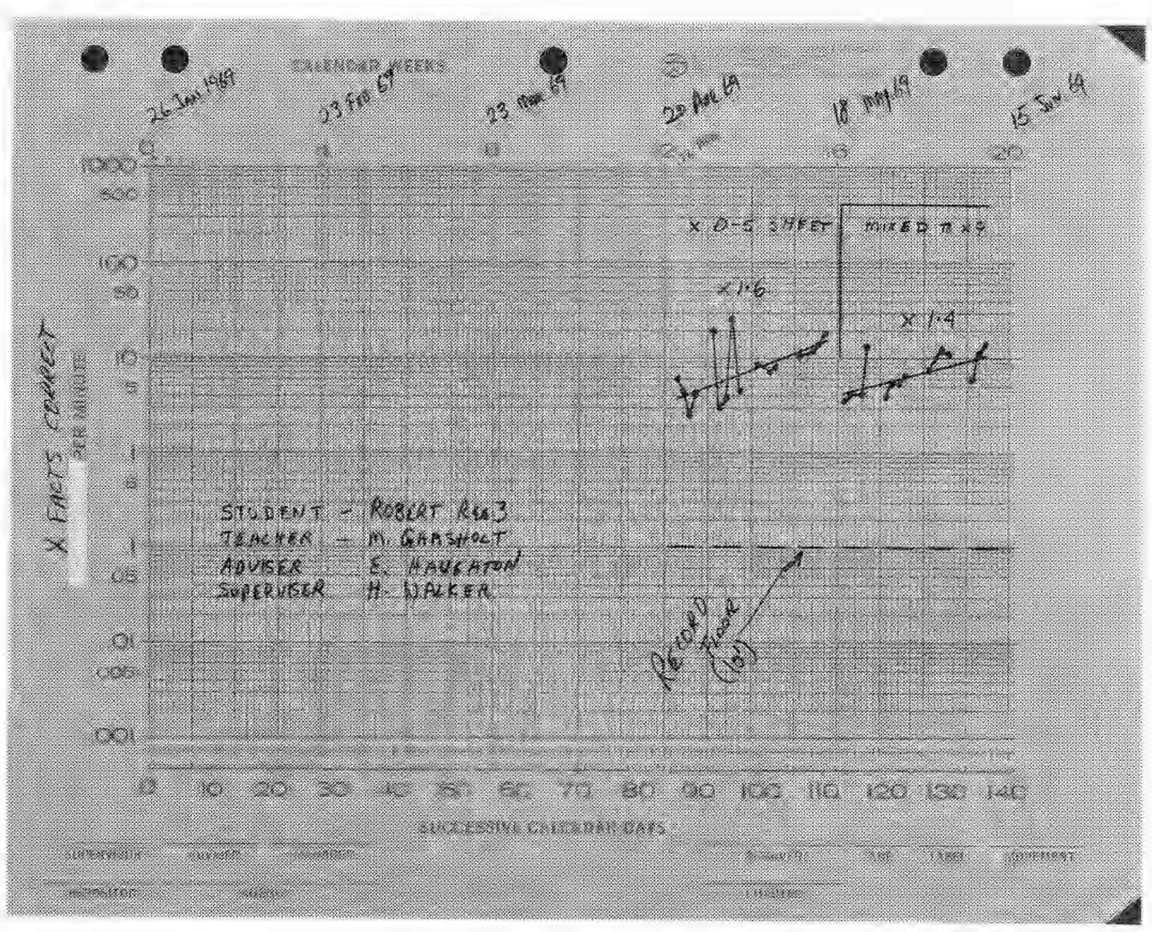


Figure 3. Robert performs below 20 correct per minute and has difficulty when curriculum becomes more complex.

The basic skills youngsters need to build on for strong academic growth must be treated with due respect.

there are not too many basic skills that youngsters need to build upon for strong academic growth. However, these skills must be treated with due respect so that we *guarantee* a youngster's proficient performance in them while (or, perhaps *before*) we develop other competencies requiring the synthesis of these skills. For example, what skill do you think is required to attain this objective: printing one's name legibly? _____ Yes, the youngster must be able to print, and since a beginner will have to think hard about spelling his name, he should be able to print at least _____ letters per minute so he can concentrate on spelling. Yes, that's right, about 100 letters per minute.

Table I lists the basic movement cycles we rely on daily in our classrooms. Why don't you guess now, in round figures, how many digits, letters, or sounds youngsters should, and can, attain in order to cope with most of our primary curricular assignments: _____ per minute.

Table 1

Language Arts	Mathematics
make marks	
. or 111 or 000	
printing	Write numbers: 1, 2, 3, etc.
cursive	one, two, three
say alphabet	say numbers
say sounds	
say words - phonetically predictable words	
- phonetically unpredictable words	

We have known for a long time that these skills are important, and good teachers expose their children to them regularly. Furthermore, we have always recognized that certain youngsters do better than others; their performance is more rapid and more efficient. But youngsters with poor performance have perplexed and puzzled us for years. In many ways—personality, motivation, friendliness, attitudes—they are similar to their more rapid and competent peers. For a long time we have searched to find the crucial difference upon which success in school depends—not a vague abstraction like "intelligence" but a characteristic or behavior and a technique to modify that behavior.

We have long searched to find the crucial difference upon which success in school depends.

We have recently discovered that it is often these differences in performance rates that *make* the difference. A youngster who writes 20 to 30 digits per minute when writing 1 through 10 will also be a poor performer in math computation. The primary movement cycles of letter formation (printing or cursive), number formation (digits or words), and letter names or sounds appear to be basic skills for most of our ongoing teaching. If more technological developments occur in elementary education, then finger pressing for typing or dial manipulation may become necessary skills. (Some future needed skills may already be taught to preschool youngsters "searching" the

Differences in performance rates make the difference!

If a youngster can do the tool movement cycles at the acceptable frequency, he can handle most elementary curriculum demands.

TV set for Sesame Street!) Given that a youngster in school today can write letters and digits legibly and at an acceptable frequency, he can handle most elementary curriculum demands. If he can say his alphabet, his sounds, and a few phonetically unpredictable words, again at the acceptable frequency, he is ready to take on the first year of our schools.

BASIC FREQUENCY AIMS: READING

□ Here is your opportunity to check your guess on basic frequency aims for tool movement cycles against some classroom data. In 1970, a group of teachers in Palo Alto, took a group of youngsters from third and fourth grades who were reading at or above 100 words per minute and went through the entire California reading curriculum. They found that if a youngster read at grade level at above 100 words per minute, he did not drop below 100 words per minute although he advanced through the curriculum. A minimum aim of 100 words per minute seems to be extremely important in oral reading.

Third graders reading 100 words per minute can handle the entire California reading curriculum.

The importance of the minimum aim of 100 words per minute is highlighted by some data collected under the supervision of Nancy Johnson (1971), who is working with youngsters in Kansas City. Her data indicate that at 50 words per minute correct or below, 90 percent of the students have relatively high learning opportunity frequencies or error rates, between 2 and 20 per minute. At between 50 and 100 words per minute, only 30 to 40 percent of the students had learning opportunities (made mistakes) in their oral reading, whereas of those students who were above 100 words per minute, only 10 percent had learning opportunity frequencies at all. This suggests an important relationship between correct frequency and learning opportunity frequency. Indeed, this relationship has been observed in other reading data, collected by Freeman and Utter, where students whose correct performances reach 100 words per minute or more have reduction to 1 or fewer learning opportunities per minute.

There is an important relationship between correct frequency and learning opporutnity frequency.

To return to our landscape analogy, if 100 words per minute is our ultimate goal or mountain, there are also significant foothills which mark important stages in a student's progress. Starlin (1970) indicates that once a youngster has reached 50 words per minute, he can achieve 100 words per minute quite easily with sufficient practice and a wise educational plan. He also found that when youngsters who were reading from 5 to 30 words correct per minute experienced severe difficulties, they usually showed evidence of not having mastered the tool reading skills, such as saying sounds, and that they may also have been having difficulty in reading either phonetically predictable or unpredictable words (Haughton, 1971). Occasionally, some of these youngsters required speech acceleration simply because they *talked* too slowly, that is below 100 words per minute.

Thus a prerequisite to effective oral reading appears to be the skill of saying sounds at an adequate frequency. We need considerably more data relating to this topic; however, the data we have seem to indicate that a relatively high say sounds rate definitely increases the acquisition of an effective oral reading frequency.

A prerequisite to effective oral reading is saying sounds at an adequate frequency.

Let me give you an example. We checked the relationship between the say sound frequency and the oral reading frequency, last year with a group of second graders, and this year with a mixed group of first through third and some fifth graders. These data

indicate a strong relationship between the capability to say the sounds correctly and oral reading frequency, as high as .60 to 1.0 correlation (Figure 4). While the correlation does not indicate a causal relationship, as we have explored the data up to now, there is such a strong relationship that it seems important to have adequate and relatively high aims for saying sounds.

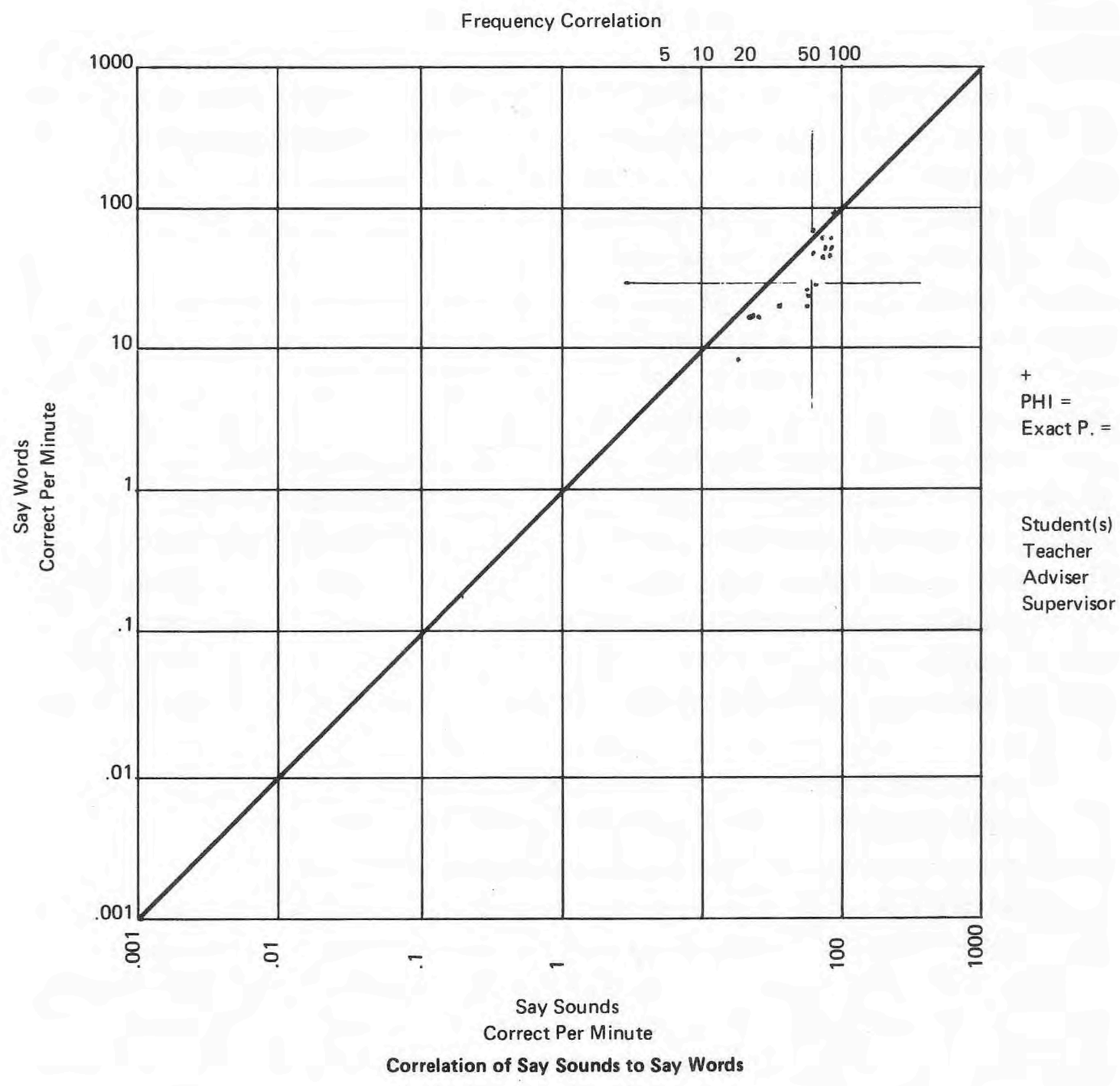
AIMS FOR MATH

There is almost a direct relationship between the capability to write digits and writing answers to math problems.

☐ Number reading and writing are the most important tool movement cycles in the area of math computation. In a series of classroom analyses, we found the relationship between number writing and math computation was between .90 and 1.0. In other words, there is almost a direct relationship between the capability to write digits and writing the answers to math problems. These relationships have since been confirmed repeatedly, most recently in data offered by Mike Gustin, resource teacher in Clover Park Schools, Lakeview School.

A brief comment on the definition of writing digits may be in order here. We find that the easiest way to take a sample is to ask youngsters to write their numbers, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and then to repeat the series, 1 through 10, for one minute. This simple assessment gives us basic information about the number writing

Figure 4. Correlation of Say Sounds to Say Words



Correlation of Say Sounds to Say Words

capabilities of most youngsters. Another important indicator is whether or not the youngster can write numbers beyond 10. If you're concerned about this, you can have a one or two minute timing during which the youngster writes from 1 to 100. However, for a simple and rapid check, writing numbers 1 through 10 seems to be enough important information.

Effective skills in the basic computation requirements involved in addition, subtraction, multiplication, and division are important basic tools that can be applied in complex mathematical problems. The best information that we have to date indicates that an aim of 80 digits written correctly per minute (or 40 to 50 problems per minute) is the appropriate level for basic math computation (Gaasholt, 1970; Haughton, 1971). The data indicate that a youngster able to do his basic facts at 30 to 40 problems per minute continued to accelerate even though the curriculum became progressively more complex, for example, moving from problems such as 7 x 5 or 8 x 6 up to 856 x 221. On the other hand, a youngster whose basic skill performance was below 30 per minute showed progressive decelerating frequencies as he was advanced through his curriculum (Figures 5 and 6). Drawing on more traditional areas of review and competency definition in the area of mathematics, Tapp finds that 25 to 30 problems per minute is recognized as an important aim.

The data indicate that a youngster able to do his basic facts at 30 to 40 problems per minute continued to accelerate as the curriculum became more complex.

WHAT IS PROFICIENCY?

☐ When aims are too low, youngsters are often slowed down! We find that our lower aims of 30 to 40 digits per minute have limited the growth of some children, just as changing the curriculum every week did in Jan Skuce's data (Figure 1). We first noticed that youngsters in a math group with a 40 digit per minute aim decelerated to the project aim even if they started above it. Imagine providing overall deceleration in an academic project! One student began at between 70 and 80 digits correct per minute in his addition, subtraction, and multiplication review. Over time he dropped to about 40 digits correct—simply because we did not set conditions so he could accelerate his performance to his previous level—his own potential (Figure 7). Now we are careful to insure that students reach their full potential by adjusting their aims so this deceleration pattern does not develop. Figure 8 shows how a student first decelerated to the aim and then retained and surpassed his former competence as the aims were raised.

Low aims slow youngsters down!

Completion of the hundred basic math facts in roughly four minutes has been an aim used in the past to indicate that the student has reached a level of fairly automatic performance in using basic skills. We now know that youngsters can still use various "crutches" at 25 and 30 digits per minute. So, recently, Mrs. Peggy May and Mrs. Beth Willis have raised basic facts aims to 80 digits per minute. Youngsters from first through fifth grades have reached this new aim and did so without finger counting or other crutches. They are truly proficient. Recently, Beth had second graders raise their aims to 100 digits per minute—and they are making it too!

High aims eliminate "crutches" like finger counting.

Reaching this "automatic" and obviously proficient level is important in number writing and in computation to guarantee student progress through the complexities of a math curriculum without being hung up on the basic dimensions. So the pattern is the same in math as it is in reading. The important dimension that we

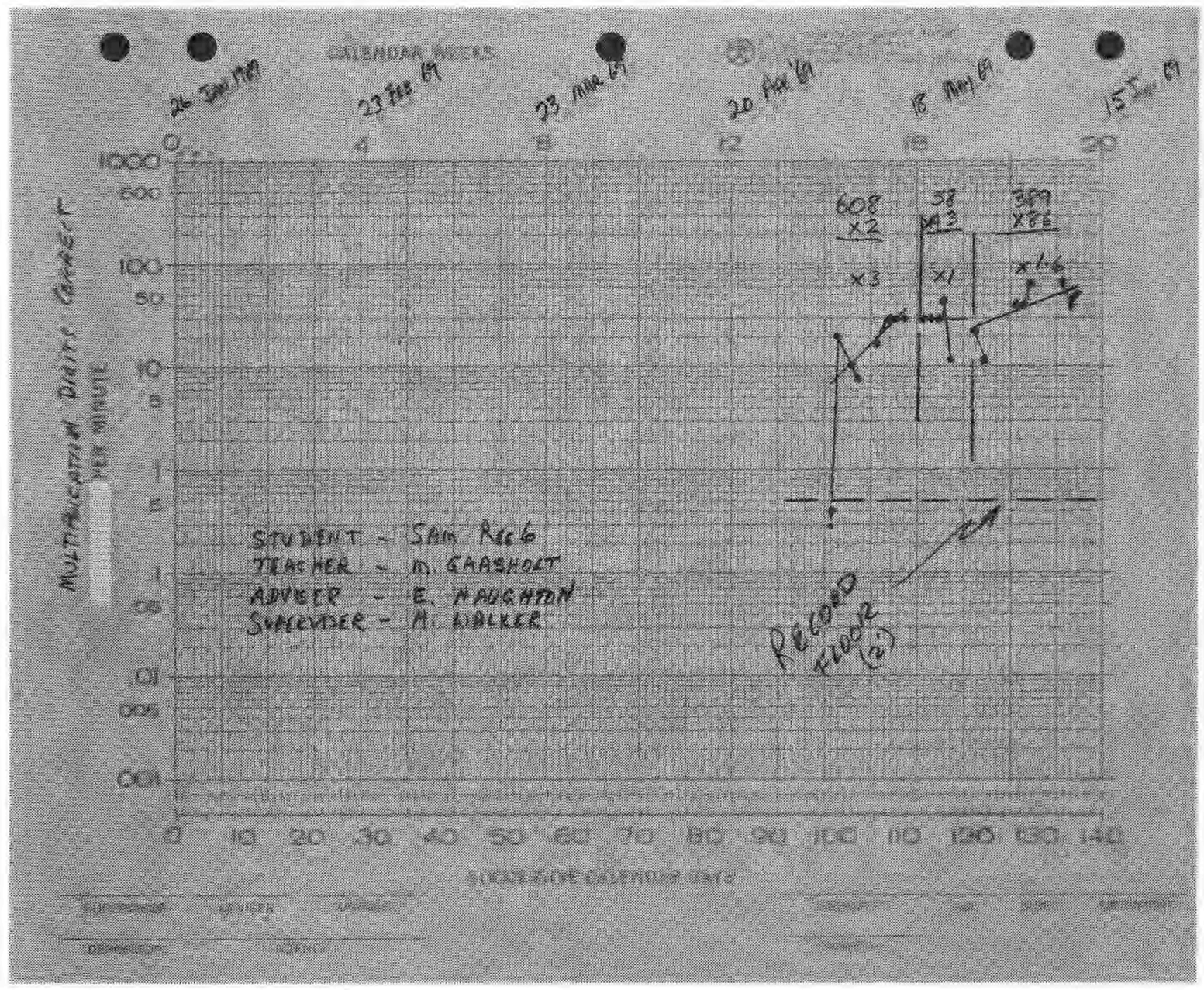


Figure 5. Sam does his simpler problems at 30 per minute and advances easily through curriculum.

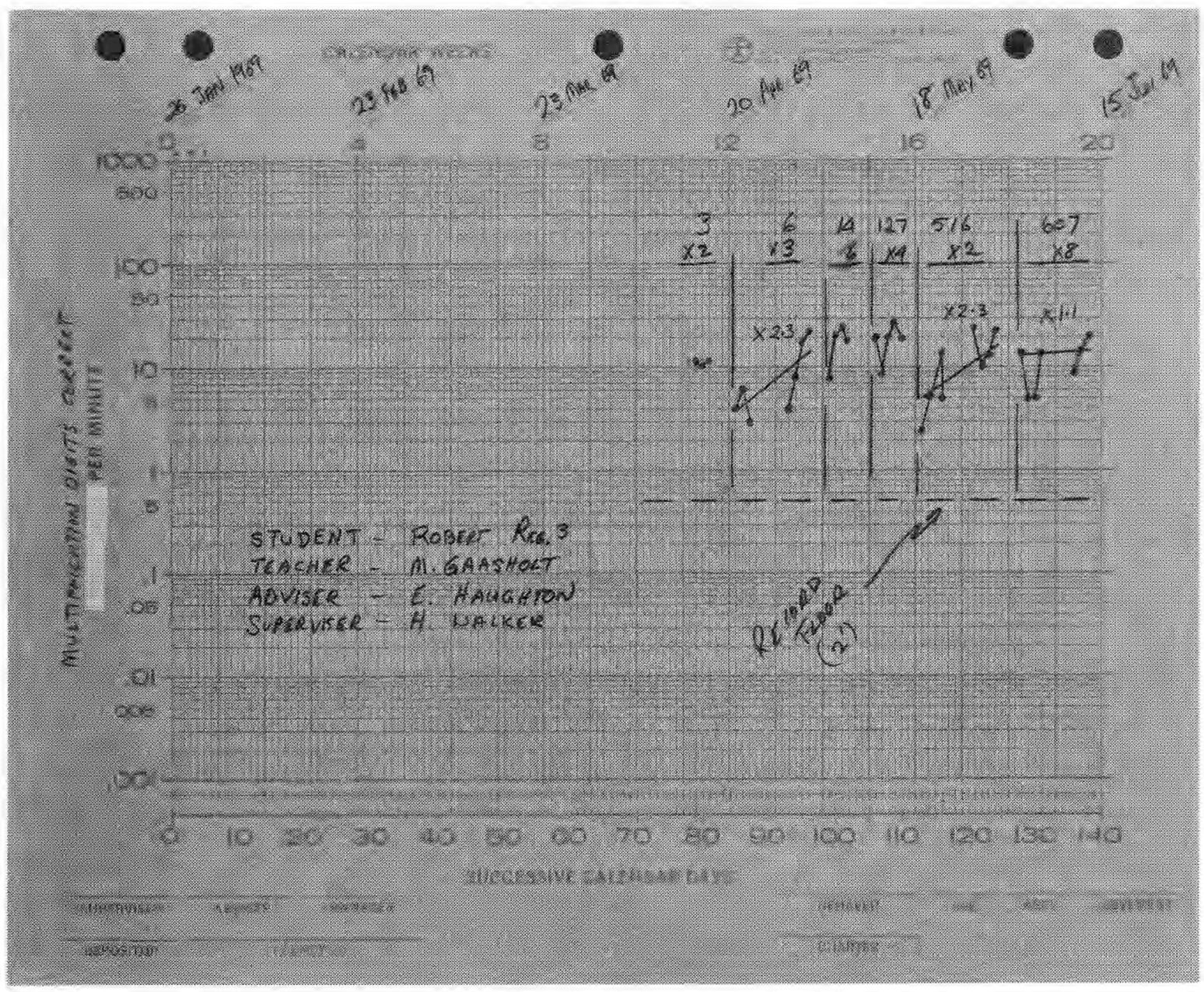


Figure 6. Robert's performance is below 30 correct per minute on simple problems and decelerates as he continues through curriculum.

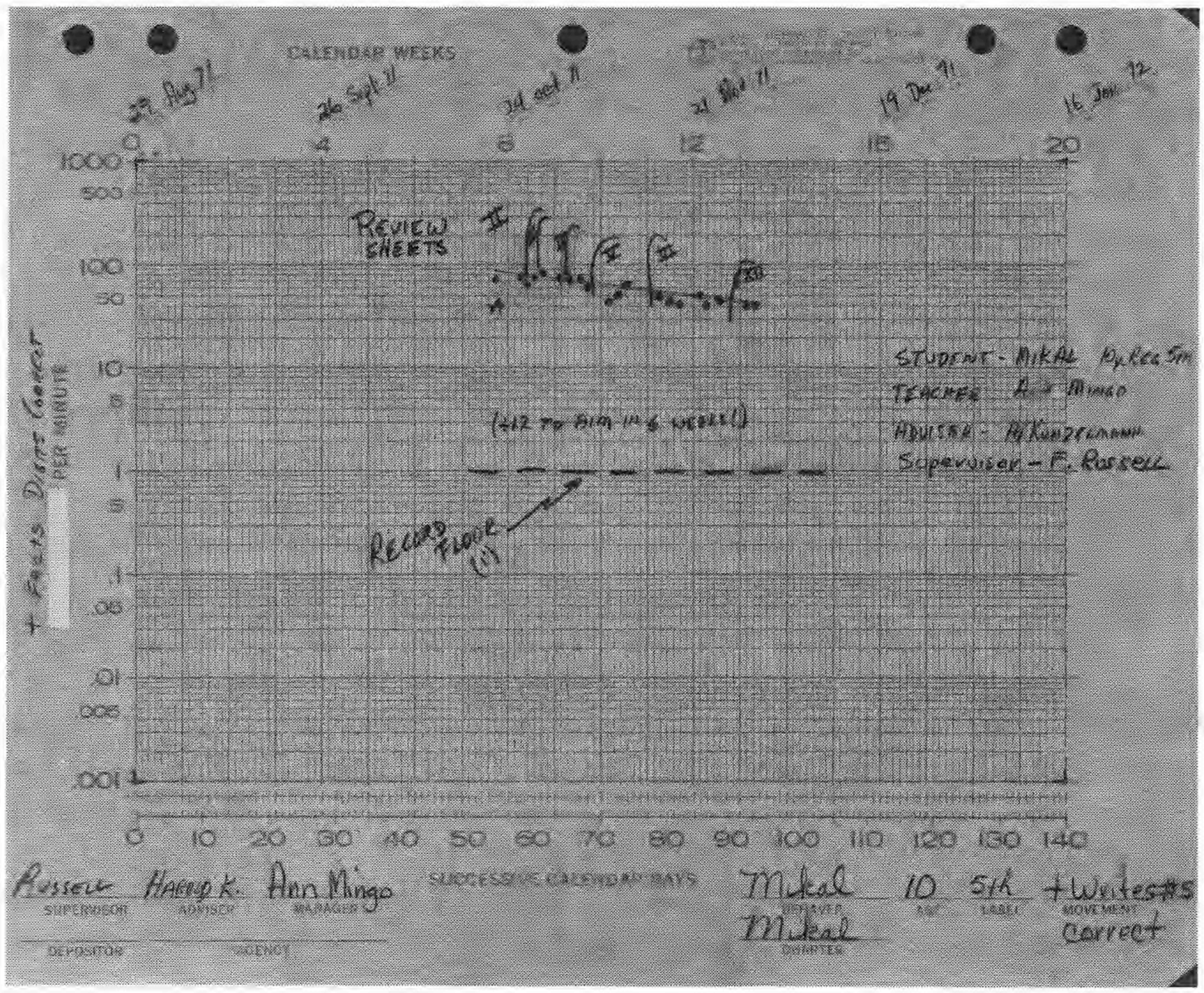


Figure 7. Mikal decelerates from his own potential to low aim.

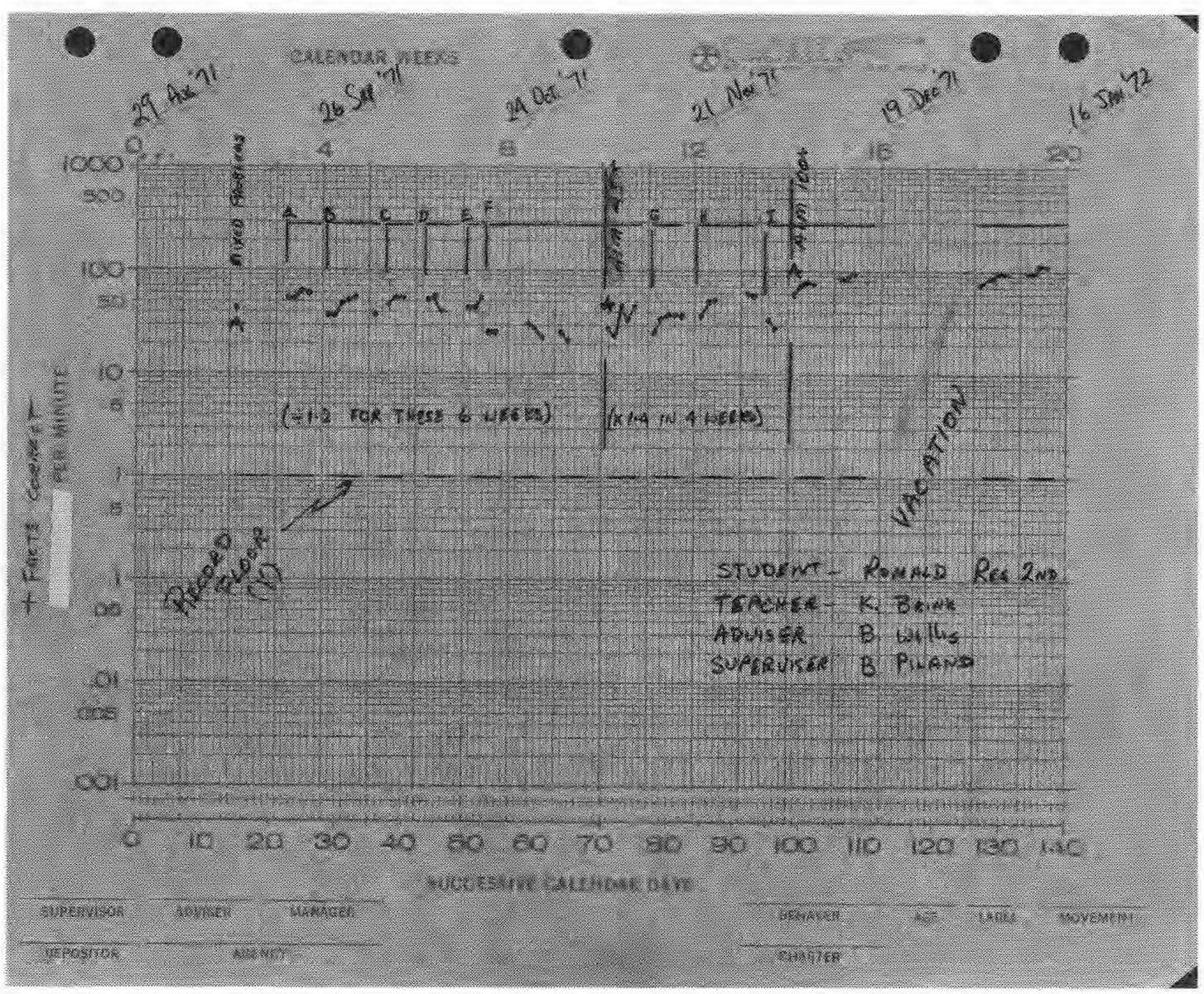


Figure 8. Ronald first decelerates to aim, then retains and surpasses his potential as aims are raised.

Aims between 100 and 200 movements per minute indicate proficient performance, whatever the curriculum area.

find in common is that aims between 100 and 200 movements per minute seem to be very crucial in indicating proficient performance, no matter what the curriculum area.

The relationship between frequency of letters written to the synthesis skills of writing words or sentences or paragraphs is the same as numbers written to computation skills or sounds said to words read: 100 movements per minute. Students can be locked at certain performance levels because of their letter writing performance. Obviously, if a youngster is writing 30 letters per minute in his abc's, it will be difficult for him to write much faster in any written assignment. Figures 9, 10, and 11 show that because Cynthia did not go much beyond her aim in printing letters, her cursive writing, writing letters to sounds, and creative writing were all limited.

Sometimes synthesis skills are done more rapidly than skills in isolation.

But here is an interesting point: sometimes synthesis skills are done more rapidly than skills in isolation. For example, we have data (Kunzelmann, 1970; Haughton, 1971) that children and adults write their letters faster in words than they do in a sequence of a, b, c. This suggests that youngsters may gain more from practicing writing words to accelerate letter writing than from the sequence of a, b, c, and so on. There is also some evidence (Kunzelmann, 1970) that the same relationship holds true in math computation. This finding does

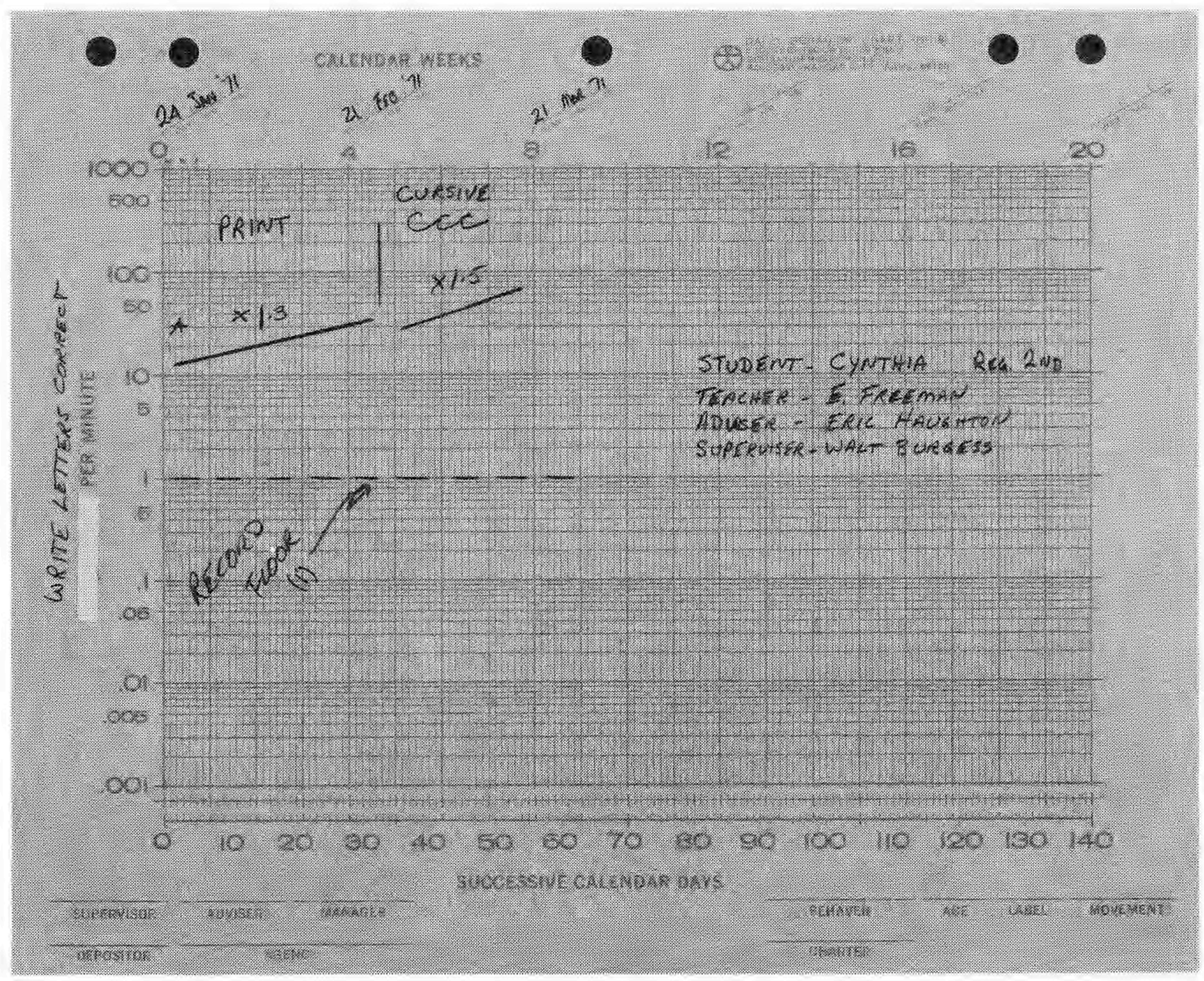


Figure 9. Cynthia's low printing performance limits her cursive writing.

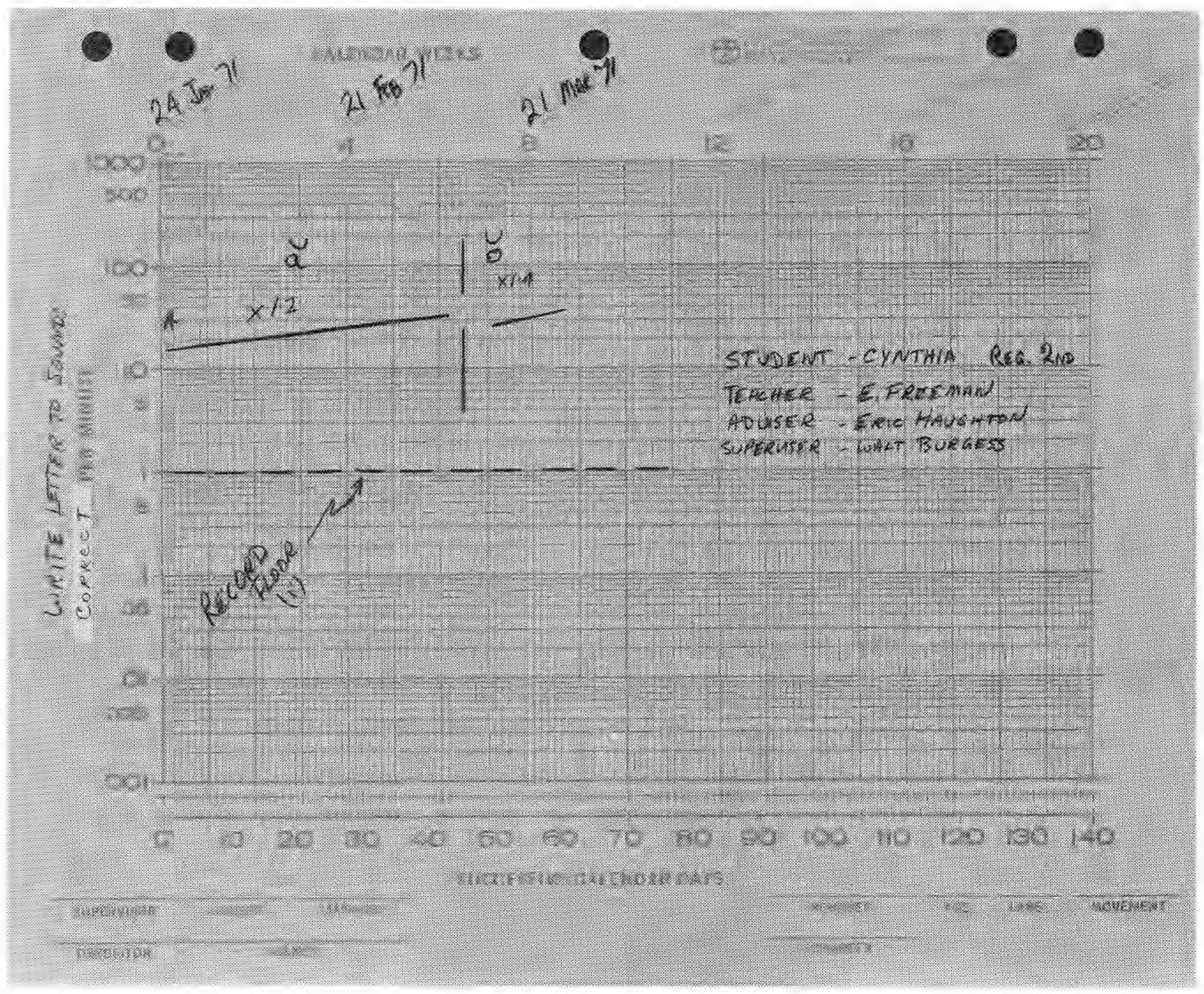


Figure 10. Cynthia's writing letters to sounds is also limited.

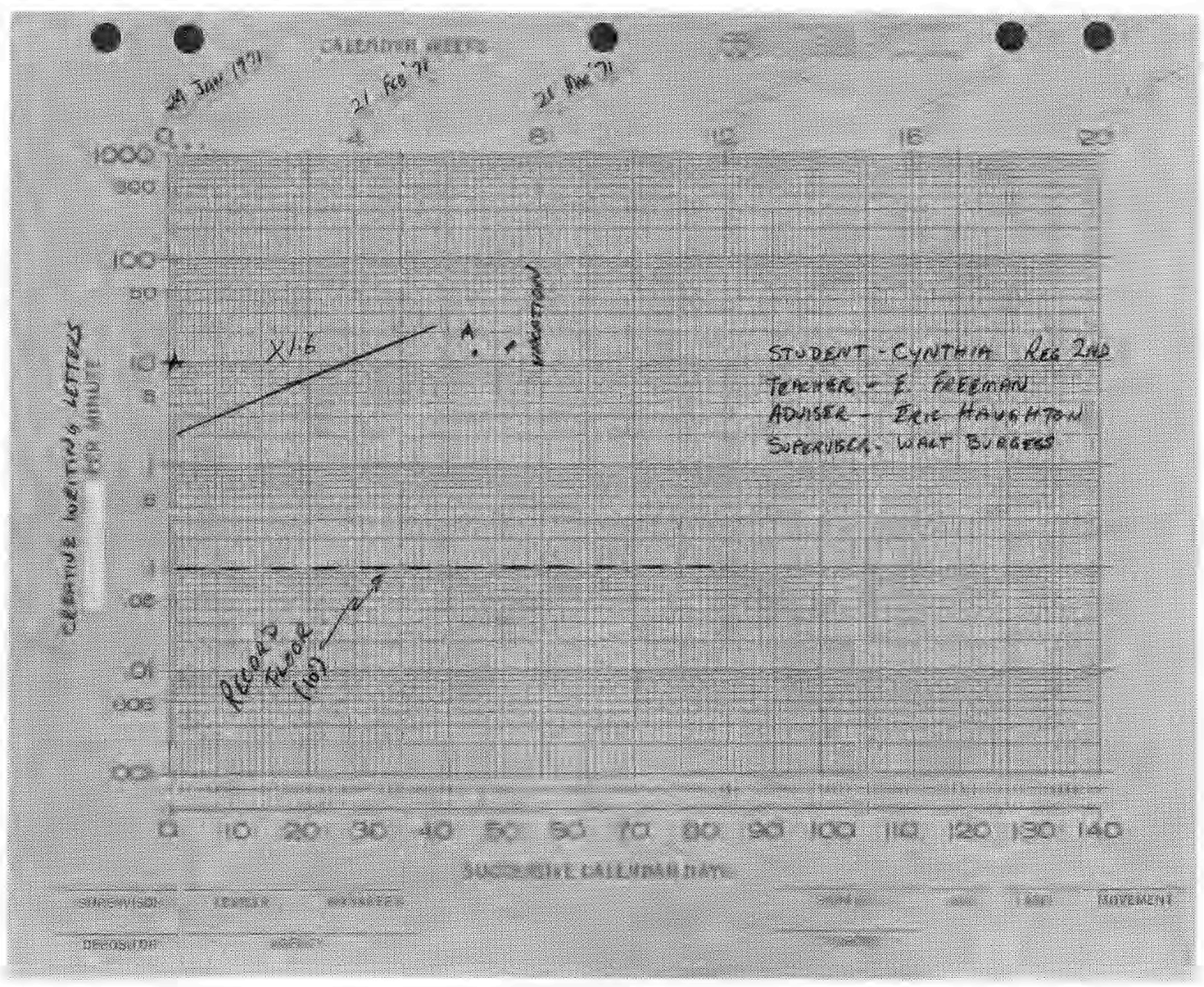


Figure 11. Cynthia's creative writing is also limited.

not detract from the importance of reaching proficiency in letter writing, and, in fact, highlights the importance of such an aim. Moreover, it suggests an alternate remediation procedure for reaching that aim.

FREE DICTATION SPELLING

☐ Free dictation spelling is a new idea introduced initially by Beverly Loeseth, a resource teacher in Eugene, Oregon. She was trying to solve the problem that we have had when spelling is paced, that is, when the words go so slowly that the youngsters are almost always waiting for the next word to come and thus not performing at their own frequency. She resolved the problem by reading either a word list at a fairly fast pace or by reading a story at a normal reading rate. Vickie Utter found that youngsters tried difficult words in stories, even though they were at primary grade levels.

Giving spelling words at usual speaking frequency allows students to perform at their own rate...

The technique is very simple. You simply choose the words, either in a list or a story, and read them at approximately your usual speaking frequency. Youngsters need to be prepared for the fact that they will not be able to keep up with all of the words that you say. One or two statements of explanation and a couple of trial timings usually take care of this adjustment. Once they get used to the fact that they cannot keep up, they write the words they hear as you read aloud through the selection. This method of giving spelling allows a youngster to perform at his own frequency throughout the entire spelling assignment. This is a breakthrough in the area of spelling where we have for years and years paced youngsters at approximately one word every 10 seconds, the usual frequency at which words are presented. Pacing not only slowed down the more able students but also prevented the collection of data on frequency and, consequently, the setting of individual frequency aims for the students.

...and allows the collection of data on frequency and the setting of individual frequency aims.

PERSONALIZING AIMS

☐ Going too far beyond an aim increases deceleration targets (errors) of the performance rather than strengthening correct performance. Anyone who has tried to read orally at 300 words per minute will find that he has to slur and jumble the words together so that they are almost unintelligible. Therefore, we do not recommend excessively high frequencies as appropriate aims, because the youngster should be progressing in the curriculum rather than attempting to "break the top of the chart."

Going too far beyond an aim increases deceleration targets instead of strengthening correct performance.

On the other hand, beware of letting the aim produce arbitrary decisions which "chop the top off" youngsters' potential. By terminating youngsters' progress exactly where they achieve the aim (by introducing new material at that point), we fail to see how much they could achieve and let curriculum control their potential output and limit academic growth. There is no objection to giving a student a chance to exceed the aim and readjusting it to be more in line with his potential—as long as it is within reasonable performance limits and does not delay his progress *through* the curriculum.

Beware of letting the aim limit students' potential.

We understand that 100 movements per minute is crucial to strong and consistent academic growth. However, this *aim should not be imposed on anyone!* For youngsters who find it difficult to attain, lower aims can be set and gradually raised until students are proficient. Also, it is not always necessary to wait until proficiency is established before advancing in the curriculum. For example, a youngster can do addition problems with sums up to 9 (e.g., 1 + 2, 4 + 1) before his number writing has reached 100 digits per minute. In fact, we do not know *exactly* where it is best for a given youngster to begin with synthesis skills, but it is probably when the basic skill reaches 30 to 40 digits per minute. Similarly, a youngster can begin to say words before his say sound project reaches 100 per minute. Future data will help refine these project decisions. A manager (teacher) should watch correct and error data carefully when a new project is introduced. If the synthesis (computation, oral reading, story writing) is difficult for a youngster, the celeration line will be quite flat, and the basic skill celeration line may decelerate. At this point, we do not have sufficient data to offer guidelines. We will appreciate data from any of you on this topic so that guidelines can be established.

Lower aims can be set and gradually raised until students are proficient.

☐ Surely we share the same kinds of goals people have always had for their children—a well rounded, knowledgeable student. But how is this result to be achieved? Aims are the precise and specific objectives of an overall objective or goal. For example, if the goal is reading proficiency, the aims involved will be stated in the form of a frequency—100 words per minute correct with 2 or fewer errors or learning opportunities per minute. Stated in this way, aims can be shared with the youngster; he can know what he is striving for and how well he is progressing. Initially he can even work for a lower aim while he builds his proficiency and then raise his aim as he progresses in the skill. He becomes the explorer, setting his sights on ever more difficult or higher mountains, but he can adjust the landscape to suit his needs.

OUR GOAL: THE WELL ROUNDED STUDENT

Aims are the precise and specific objectives of an overall goal.

Stating aims as frequencies allows youngsters to share in their educational planning.

Let's see how our traditional practices have stacked up against our objective: the well educated student. We often do certain lessons or exercises for a set number of days or weeks and then move on. Does such a calendar plan guarantee a youngster's acquisiton of a skill? Of course not. We all know and feel very uncomfortable about the fact that some youngsters are left behind. We respond to the pressure of time and not the proficiency of the student.

Traditional proficiency measures which neglect the crucial element of time are insufficient.

Another method is to assign certain pages to each youngster. Often this approach increases the amount of individualization, and yet, is this satisfactory? Most workbooks "review" or "expose" youngsters to ideas and concepts. There may be three or four concepts on a single page. Workbooks do not systematically strengthen a skill, guarantee the youngster knows it solidly, and then move on. We

know that carefully graduated, repeated practice with feedback on refinement of the skill is needed to thoroughly develop or strengthen a skill. Obviously, the page by page assignment will not help a majority of youngsters to reach proficiency.

More recently, we have been paying more attention to specifying *what is to be learned* rather than *what is to be taught*—that is, concentrating on the child's behavior rather than the teacher's. We carefully measure changes in a youngster's behavior that indicate learning and state a goal: be able to write digits 1 through 10 or to write correct answers for addition combinations 0 to 9. However, even this method does not stress actual learning strongly enough; these objectives fail to include the crucial dimension of *time*.

Time, in any precise sense, is a very recent discovery. Timing events in a meaningful way is so new that we talk of running a four-minute mile rather than saying 15 miles per hour or the 100 yard dash in about 10 seconds instead of 25 miles per hour. When we convert to the common base of miles per hour, it is apparent that the 100 yard dash is run 16 times faster than the mile, although this is not obvious when different standards are used to report similar running events. Before accurate timing on a common base, we knew only who won each race in a track meet, not who ran the fastest.

Of course, sports skills have always been timed for instructional purposes; the hallmark of the coach is the stopwatch. It is recognized that growth in these skills requires careful, daily recording or coaching may be ineffective. We teachers are just beginning to recognize that *we*, the daily practitioners of pupil growth, must pay strict attention to time also. Time is a fundamental component of measuring processes that change, and since kids are almost constantly changing, we must include time in our records of their performance. In so doing, we create settings which virtually guarantee growth. These learning settings incorporate three great teaching strengths: (a) precise, detailed knowledge of the facts of the youngster's growth; (b) our finest intuitive powers; (c) through the added bonus of precise data, the capability to make accurate forecasts of each pupil's performance. Teaching in these settings is marked by students working at their own levels and compassionate guidance for youngsters who want to reach precise performance objectives.

Teachers, the daily practitioners of pupil growth, must pay strict attention to time.

SHARE IN CAREFULLY DOCUMENTED GROWTH

When youngsters become involved in reaching performance aims, they become our allies... personally reliant learners.

☐ We invite you to share the excitement and joy of carefully documented growth. When youngsters become involved in reaching performance aims, they become our greatest allies in attaining these shared goals. Also, charted data with precisely stated aims allow us to forecast the outcome, related to the current growth pattern. This sets the stage for maximum youngster independence and personal management. And the personally reliant learner is one of our most fundamental educational goals.

Our efforts with the youngsters we've worked with to date

indicate that they grow in many facets—many we currently do not record but that are obvious to visitors to fully committed precision teaching classrooms. Last year, a pediatrician visiting one of these classrooms exclaimed, "Why these children are *all* kings and queens!" It did appear to be true of these 7 year olds, then in grade two and who had been practicing precision teaching for only 30 weeks.

☐ Youngsters acting like kings and queens is not very well pinpointed, but somehow highly complimentary. These children carefully watched and then began to direct their own daily growth. They prepared for each of their assignments, corrected and charted them rapidly, and offered help to their table mates. When adult visitors inquired about precision teaching, these second graders could also explain each project in detail, describing the various curriculum changes, their aims and celeration lines. These are the very skills that we teachers need to master during *our* training.

WHAT TEACHERS NEED TO LEARN

The skills these second graders showed are the very ones teachers need to master.

Therefore, teacher training must now include courses in the practical use of recording and charting. Briefly, our preparation needs to teach us how to:

Teacher training should be practical...include recording and charting.

1. Pinpoint and sequence relevant academic and social movement cycles,
2. Understand and conduct the basic steps of direct daily recording and charting,
3. Instruct youngsters in charting daily on the standardized behavior chart,
4. Help youngsters interpret their data correctly,
5. Do simple celeration analysis of growth.

These skills are easy to teach and easy to learn. As youngsters begin to understand their own progress, our responsibility as teachers shifts from the day to day management of students to the exciting interaction with youngsters knowledgeable and enthusiastic about their daily growth.

More complex than counting and charting is the setting of aims which really strengthen youngsters' skills. Ultimately, we want youngsters to know how to set their own aims, forecast accurately regarding their long-term goals, and reset their aims to assure their progress. At this time, we as teachers must at least be able to:

Both teachers and students should know how to set aims.

1. Locate proficiency levels for aims,
2. Personalize temporary goals which lead to the proficiency level aim,
3. Plan so youngsters can and do achieve aims,
4. Increase youngsters' growth potential by raising their performance on simple movements.

Thus, we still face the major classroom problem of adapting available curricula to meet the needs of individual youngsters; we must make sure students have a *chance* to learn the skills and concepts presented to them.

The challenge to the teacher preparation institutions, professional associations, teachers, parents, and youngsters is enormous. But working together, employing precise recording and charting as a tool in a humane atmosphere, we can make it. By setting appropriate aims and helping youngsters grow in understanding themselves and planning their own growth, we surely can make it.

The challenge is enormous...but working together we can make it.

Gaasholt, M. Precision techniques in the management of teacher and child behavior. *Exceptional Children,* 1970, **37**, 129-135.

Haughton, E. Correlation of Say Sounds to Say Words. *Behaviorgrams,* Jan. 21, 1971, Article 061.

Johnson, N. Data published in Behavior Bank, P.O. Box 3351, Kansas City, Kansas, 1971.

Kunzelmann, H. (Ed.) *Precision teaching: An initial training sequence.* Seattle: Special Child Publications, 1970.

Starlin, C. Evaluating progress in reading. In B. Batemen (Ed.), *Learning Disorders IV.* Seattle: Special Child Publications, 1970.