RESUMING PUBLICATION OF JPT

Publication of the **Journal of Precision Teaching** was suspended with the conclusion of Volume VI in January, 1986. This suspension was due to a decreasing list of subscribers, few publishable manuscripts, and a lack of funds to defray the costs of printing and mailing. Some new manuscripts and funds have been secured, as well as the assistance of several veteran precision teachers, including Abigail Calkin, Mark Koorland, and Claudia McDade. As a result, the publication of **JPT** will be reinstated with this issue, which will be designated as Volume VII, No. 1. **JPT** was formerly a quarterly publication; it will now be published biannually (twice a year).

Patrick McGreevy
Editor

WHERE HAVE ALL THE CLASSROOMS GONE?

Gene Stromberg and Marilyn Chappell

What has happened to classroom applications of Precision Teaching? A review of volumes 1-6 of the Journal of Precision Teaching reveals that not only do charts of individuals outnumber those of entire classrooms (by multiples approaching 30:1 per year), but they are accelerating (by a healthy X2.6 per five years). Classroom charts, which barely exist at all-- a total of 7 in 6 years, are decelerating at nearly /2.6 per five years. From these data, we might conclude that Precision Teaching is being utilized as a tool for individual change, but does not have impact on classrooms of children. In this context, I believe that it is valuable to look at a project conducted nearly nine years ago which was designed to explore the efficacy of using Precision Teaching to accelerate the learning of an entire classroom of students at once.

Method

In 1979, as principal, I advised Marilyn Chappell, 2nd grade teacher, how to measure the learning of arithmetic for all 15 children in her class at once. With the expressed aim of allowing each child to learn "at his or her own rate", Marilyn arranged her arithmetic instruction time to include three groups which operated simultaneously. Students were assigned to groups according to social compatibility . Marilyn taught the groups to move from one activity to another at a given signal without her assistance. One group played board games that related to concepts being introduced. Another group worked at learning basic math facts with the aid of flashcards and practice sheets. These first two groups worked without teacher input. In the third group, Marilyn directly instructed students to correct learning opportunities they had made during their daily timings. Marilyn only instructed students on those learning opportunities which the students themselves selected from their daily practice sheets.

Marilyn made her own practice sheets of problems. The practice sheets contained about 50 problems, more than Marilyn expected students to complete in a one minute timing. She did not want students to run out of work to do before time was up. Marilyn distributed the sheets to the entire class, instructing them to do as many problems as they could in the one minute.

She advised them to skip problems they could not do or to guess an answer if they thought it correct. They were assured that "guessing was o.k.". To encourage students to try problems they might not know, she called errors "learning opportunities". If a student erred, s/he created an opportunity to learn correctly. Students were given an answer sheet so they could correct their own work, or switch papers and correct a friend's. Students were instructed to count their corrects and learning opportunity responses and record them at the top of the practice sheet. Students also dated each practice sheet.

After two days of timings, I came into the class to teach the students how to chart their counts on the Standard Celeration Chart (SCC). Students who caught on quickly were encouraged to assist others who wanted more time. Marilyn assisted some students with charting on the days following my instruction. Every student eventually charted their own results on SCCs which they kept in their notebooks throughout the project.

In the first phase of the project, Marilyn introduced practice sheets which presented number concepts to students as suggested by the sequence of the arithmetic text (referred to as "lock-step" in Chart 1). Students began by adding number facts with addends of +5. This phase lasted two weeks. At the end of the two weeks, Marilyn summarized the student's data by drawing learning pictures of correct and learning opportunity celerations. These learning pictures are displayed in Chart 1.

In phases 2 and 3, Marilyn continued introducing arithmetic to students as suggested in the text. After presenting +5 facts and +6 facts, +5 and +6 facts were presented together. The data from these phases are also summarized in Chart 1. To verify that students were, in fact, learning the +5 and +6 facts and not just memorizing the answers from the order of the practice sheet, Marilyn rearranged the problems on a new practice sheet. This rearrangement was Phase 4.

In phases 1-4 most students were improving their correct responses, but were not learning new material (they made no learning opportunities) (see Chart 1). Marilyn decided not to follow the sequence of presentation suggested in the text. Instead, she created a practice sheet including all concepts the text planned to introduce throughout the year--simple addition and subtraction, addition with carrying, subtraction with borrowing, and single-digit multiplication (referred to as "teach all at once" in Chart 1). The sheet had about 20 examples of each concept. In this phase, students continued, as above, to time, count, record, and chart their daily performance.

Results

Chart 1 describes 2-line learning pictures of all 15 students in the class summarized in stacks. The results of each phase are further summarized in Table 1. Ninety-five percent of all "lock-step" pictures (phases 1-4) were "take-off", with corrects increasing and errors remaining flat at "zero". "Teach all at once" produced 100% "Jaws Crossover" pictures, with errors starting higher than corrects, but corrects ending higher than errors. During "lock-step", the median correct learning was X1.7 per week. During "teach all at once", the median correct learning was X2.0 per week.

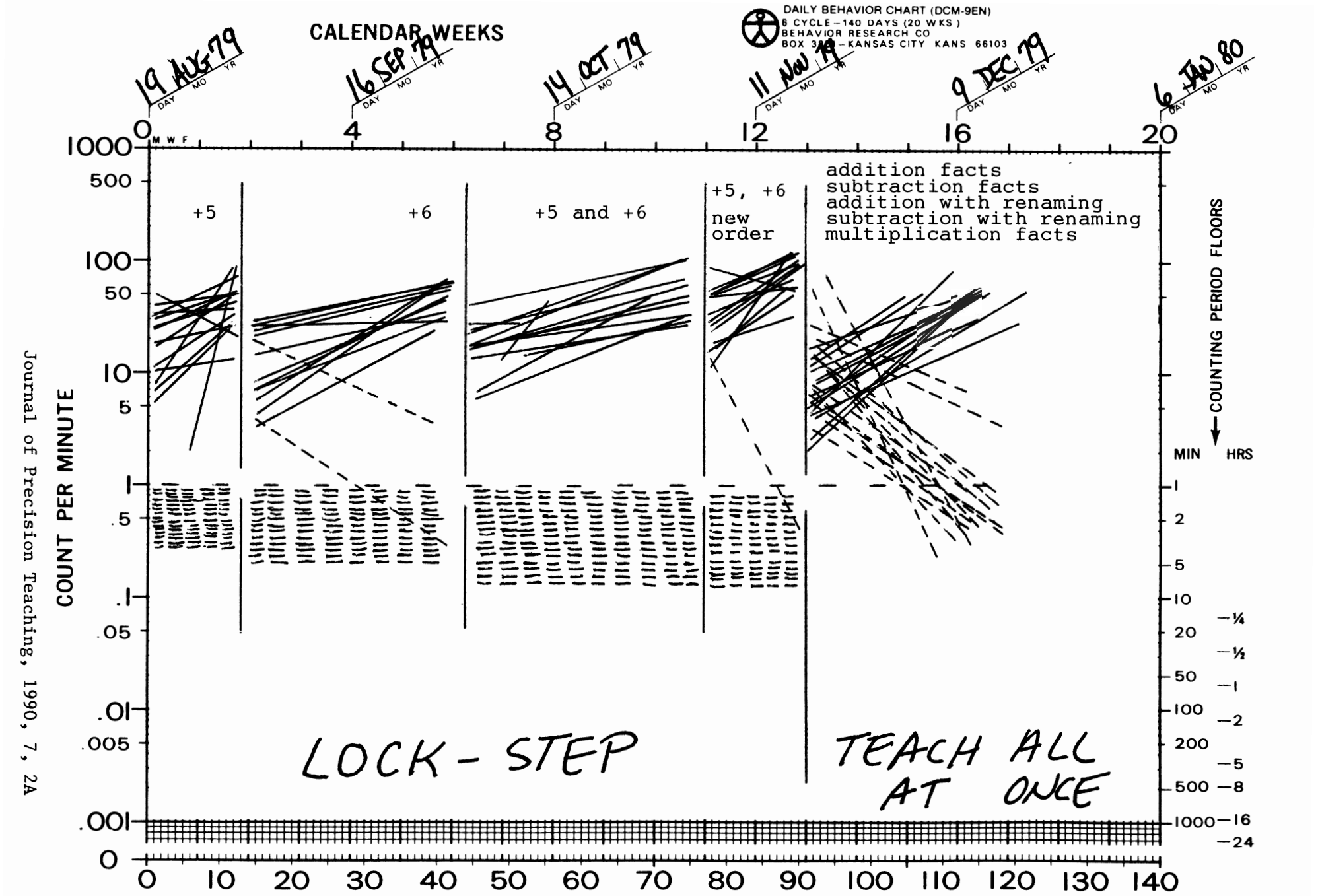

Chart 1. Celerations for Math Instruction

G. STROMBERG — SUPERVISOR
M. CHAPPELL — ADVISER / MANAGER
STUDENTS — BEHAVER
2ND GRADE — AGE
CELERATIONS — LABEL
SEE-WRITE — COUNTED
answers to math facts
GARFIELD ELEMENTARY, OTTAWA, KS — AGENCY
COUNTER
G. STROMBERG — CHARTER

Journal of Precision Teaching, 1990, 7, 2A

Table 1

The Celeration Range and Median for Each Phase

Phase 1-	celeration range:	/1.7-X5.0 (correct) X1.0-X1.0 (1.o)
	celeration median:	X1.7 (correct) X1.0 (1.o.)
Phase 2-	celeration range:	/1.6-X2.1 (correct) /2.0-X1.0 (1.o)
	celeration median:	X1.4 (correct) X1.0 (1.o.)
Phase 3-	celeration range:	X1.2-X1.7 (correct) /8.0-X1.0 (1.o.)
	celeration median:	X1.3 (correct) X1.0 (1.o.)
Phase 4-	celeration range:	/1.3-X4.4 (correct) X1.0-1.0 (1.o.)
	celeration median:	X1.8 (correct) X1.0 (1.o.)
Phase 5-	celeration range:	X1.1-X4.6 (correct) /8.0-/1.6 (1.o.)
	celeration median:	X2.0 (correct) /3.2 (1.o.)

The median error improvement during "lock-step" was X1.0, while the median error improvement during "teach all at once" was /2.3 per week. Students achieved a level of performance acceptable to the teacher on 3 concepts in 4 weeks with "teach all at once". In "lock-step" instruction, students spent 13 weeks on one concept.

Conclusions and Implications

From the data in this study, the following conclusions can be drawn: (1) A teacher can manage an entire classroom of precision learning; (2) high learning opportunity to correct ratios at the outset can result in high rates of learning (Cf. McGreevy, 1980; Bower & Orgel, 1981; McGreevy, et. al., 1982); (3) compacting curriculum and teaching to errors can result in greater learning than "lock-step" instruction.

These conclusions lead to the following implications: (1) with functioning classroom management, compacted curriculum, daily timings, and charting the data on standard celeration charts, an entire classroom of students can rapidly accelerate their learning; this is probably true in subjects other than math; (2) textbooks may slow down learning; teachers should regroup information from texts to fit the learning styles of children; (3) when encouraged to do so, students can learn from a variety of sources, freeing the teacher to teach those who need her/him; (4) teachers should encourage rather than discourage students to make learning opportunities; and (5) students should count, record, and chart their own progress; teachers do not have to do this for them.

While these data are nearly "ancient history" they have not been replicated to my knowledge. Seven years ago when Marilyn Chappell produced these data, we spoke of having a "new standard" by which to measure classroom effectiveness. It seems that this standard has been either out of reach or not aimed for since. I recall Eric Haughton (1979) speaking of encouraging students to make learning opportunities as a way of increasing their "curricular courage". Eric meant the courage of students to try things they did not already know how to do. From the data reported in the Journal of Precision Teaching, it seems that it is not students, but teachers who need to develop a bit of curricular courage. They might start by reporting some results of increasing the learning of entire classrooms of children.

References

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PRECISION TEACHING WITH THE PHYSICALLY IMPAIRED: THEY CAN CHART TOO!

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Abstract: This study examined the adaptation of Precision Teaching techniques in the teaching of addition facts to the physically impaired. The students in the experimental group participated in the correction and charting of their progress while the students in the control group completed worksheets from their class text. A comparison of post test gain scores revealed more progress for those students in the Precision Teaching group. An examination of individual charts showed positive learning pictures for all students in the experimental group. The authors suggest the use of Precision Teaching as a viable means of accountability for teachers of the physically impaired.

Perhaps, there is no other area of education where proof of a student's progress is so essential as in the area of exceptional education. Propelled by the passage of Public Law 94-142, an Individual Education Plan (IEP) must be written for each special student. Among other requirements, the IEP must contain goals and objectives plus documentation for determining when objectives have been reached. One technique that may be used to document the student's progress towards achievement of these goals and objectives is Precision Teaching (Lovitt, 1977b). Precision Teaching was first introduced as a useful measurement strategy by Ogden Lindsley in 1965 (Lindsley, 1971).