

Our Aims, Discoveries, Failures, and Problem

by

Ogden R. Lindsley

Here I outline our first aims, our discoveries, our failures, and our major problem. I describe our failures more fully than our discoveries, because the failures have been seldom described. Also, these failures are still good ideas and should be given a chance at wider use. Our discoveries are well known and adequately reported in the literature. Our discoveries are in fairly wide use. Therefore, I will merely call attention to our most important benchmarks. This outline does not detail or support these benchmarks with data. Query the references for detail and data support.

OUR FIRST AIMS

In 1965 we set out to introduce (1) rate of response with (2) standard (3) direct (4) continuous, and (5) self-recording to public school classrooms. Laboratory research had proven rate to be more sensitive than percent correct and other less direct behavior measures (Lindsley, 1956). Rate (frequency), we thought, might also prove more sensitive in monitoring classroom learning.

We met these initial five aims in our first three years in education. Our first class-wide frequency recording was in a Montessori class for special children (Fink, 1968). Elaine Fink showed we could effectively use rate of response with curricula as varied and as difficult to measure as Montessori materials. Clay and Ann Starlin showed an entire regular first grade class could correct, and chart their own academic work on standard celeration charts (Starlin, A., 1972, Starlin, C., 1971). Ron Holzschuh with Dorothy Dobbs and Tom Caldwell showed that academic frequencies (rates) recorded 40 times more effects of curricular changes than did percent correct (Holzschuh & Dobbs, 1966) (Caldwell, 1966). At the time Ron said that percent correct was the worst thing that ever happened to education. These and many other studies proved behavior frequencies significantly more sensitive to learning variables in the classrooms than percent correct and percent of time observed on task.

We successfully moved frequency of response to the classrooms. We produced a standard chart for teacher and child recording. We were successful beyond our dreams. Then we began training teachers to use Precision Teaching. We also began researching further applications of our standard chart. Phillip Hilts accurately reports our high excitement during that time (Hilts, 1974).

OUR DISCOVERIES

We did not set out to discover basic laws of behavior. Rather, we merely intended to monitor standard, self recorded performance frequencies in the classroom. We expected frequency would prove more sensitive and would produce more rapid learning.

However, along the way, as we collected thousands of learnings on standard charts, relationships began to emerge. Our plain English thinking and communicating made it easier to see new and unexpected relationships. Our discoveries were data-up (inductive). The massive amounts of easily compared data slowly induced counter-intuitive ideas. Our discoveries were not theory-down (deductive). Gradually we discovered surprising basic laws of behavior that had eluded us in the laboratories.

The most important discoveries are outlined below. Sometimes, when unexpectedly asked what we had found out, I would fail to remember one of our most important discoveries. If I couldn't recall them all, how could I expect others to? So I made a memory aid for myself. After the aid had successfully worked for me for a year, I shared it with others (Lindsley, 1977). Our memory aid for the five most important counter-intuitive laws of behavior is **MUSIC**.

M - BEHAVIOR MULTIPLIES IT DOESN'T ADD

Our major discovery was that all behavior multiplies or divides. You should not even think increase or decrease. When thinking about behavior, you should think multiplying or dividing. It is proportional and almost always changing. We have proven this several different ways, but we have not

succeeded in getting even ourselves really to believe it. We use the standard celeration chart, but we talk about increases and decreases on it. Of course, we are trying to overcome 600 years of incorrectness about behavior.

It is similar to overcoming the notion that the world is flat. Thinking that all behavior is either multiplying or dividing is counter intuitive. It doesn't feel right. However, counter intuitive discoveries give us much more new power than discoveries we expected. They correct us.

As the nineteenth century humorist, Henry Wheeler Shaw said through his character, Josh Billings, "It ain't what a man don't know what makes him a fool, but what he knows that ain't so." Here's what we know that is so:

Behavior frequencies accelerate by multiplying and decelerate by dividing.

Behaviors bounce up the same multiple as they bounce down (homogeneous variance).

The total bounce stays the same multiple as the frequency changes (additive variance).

Frequencies across persons are spread the same multiple up as down.

Everything you look at about behavior is proportional or a multiple. Behavior lives in the multiply world. If you look for behavior in the add world, you will not find it and will not know why you didn't.

U - BEHAVIOR IS UNIQUE NOT COMMON

Everything about behavior is unique to that behavior. To maximize learning we had to customize many teaching procedures or values to each learner. Our one-minute timings on practice sheets have more problems than the fastest learner can solve automatically in the allotted time. These adjust the amount of work to each learner's performance. In the early seventies we devised the following slogans to describe customizing the Precision Teaching steps of: Pinpoint, Record, Change, and Try, Try Again.

PRECISION TEACHING UNIQUENESS SLOGANS

SETTING: Different BEDS for Different HEADS.

MANIPULANDUM: Different TOOLS for different FOOLS.

PINPOINT: Different STROKES for different FOLKS.

AIMS: Different GOALS for different SOULS.
REWARDS: Different BUCKS for different DUCKS.

CHANGES: Different TRYS for different GUYS.

S - BEHAVIOR IS SPECIFIC NOT GENERALIZED

We should expect behavior to occur at fluent frequencies only in the situation in which they were learned. If generalization is wanted, then it must be taught. The learner must practice fluently in each and every situation that fluency is wanted. We do not expect generalization to occur by magic. If we want generalization, we must teach it.

I - BEHAVIOR IS INDEPENDENT NOT DEPENDENT

The mistaken notion that as corrects go up errors must go down maintains using percent correct to measure learning. This see-saw effect occurs only when teachers hold the number of problems constant and so low that all learners can answer all problems in the allotted time.

Correct and error frequencies are independent.

Positive and negative behaviors are independent.

Positive and negative feelings are independent.

Positive thoughts and positive behaviors are independent.

Urges and their related behavior are independent.

In other words, everything about behavior is independent.

The biggest surprise was the independence of frequency (performance) and celeration (learning). I was convinced prior to our summary of 32,192 banked projects that the higher the frequency, the higher would be the celeration. I expected this because the higher frequencies of reinforcement at the higher frequencies of performance would produce steeper learning.

Carl Koenig broke each of the six times 10 cycles on the chart into 3 class intervals. This made a total of 18 intervals covering the range of frequencies from .001 a minute to 1000 a minute. The middle celeration of each frequency interval was selected for the acceleration targets and the same was done

for the deceleration targets. The median celeration for all except one of the frequency intervals was times 1.1 per week. There were no frequencies between 5000 and 1000 per minute. The median celeration for the interval from .01 to .02 per minute was times 1.2.

The median celerations were the same, times 1.1 per week for acceleration targets and divide by 1.1 per week for deceleration targets for each frequency band. This was almost like gravity - 32 feet per second per second no matter how heavy the object. Learning was times 1.1 per week no matter how frequent the performance. Learning (celeration) is independent of performance (frequency).

C - BEHAVIOR IS CONSEQUATED NOT CAUSED

We should realize that behavior is maintained by its consequences. Its antecedents or causes merely set the situations under which the consequences operate. When a child starts yelling in the classroom, you should not look at what happened just before the tantrum. If the counselor enters and says, "What caused that?" the answer is, "I don't know, he hasn't stopped yet!

Behavior is pushed from its rear, not pulled from its front. What immediately follows the behavior is what maintains it.

DAILY PRACTICE

We found in many studies that daily practice is essential. One minute a day beats three minutes every other day. This work was supported by my own studies with graduate students at the University of Kansas. Sue Ellen Gabriel found the same thing in the classrooms of Great Falls, Montana schools.

FLUENCY REAPS FUN

Eric and Elizabeth Haughton developed the fluency aims in Hastings County School District of Ontario, Canada. Their data showed that practicing tool skills up to frequencies of 100 to 300 per minute, facilitated later learning of more complicated tasks involving these tool skills. In the early seventies Eric was urging reading fluency to aims over 100 words per minute (Haughton, 1972).

Eric designed the memory aid REAPS to list the benefits produced by high fluent frequencies:

R for Retention. High fluency produces longer retention.

E for Endurance. High fluency produces greater endurance.

A for Application. High fluency produces greater generalization to new environments.

P for Performance aims. Fluency gives you teaching aims.

S for Stability. Fluent performance is more stable and more resistant to distraction.

I added a further memory aid FUN to list three additional benefits of fluency:

F for Fun. It is more fun to perform fluently.

U for Understanding. Fluency generates interest in understanding what you are fluent in.

N for No cheating. Cheating slows the learner so much that it can't be used in fluency.

Carl Binder has recently published a further discussion of the relationship between fluency and Precision Teaching (Binder, 1988). Even more recently the relationship between fluency and attention span has been pointed out (Binder, Haughton, & Van Eyk, 1990).

OUR FAILURES

THE BEHAVIOR BANK

Because we collected school learning on standard charts, we went the next step and described the behavior, the setting, the curriculum and their changes on standard forms. An optical character reader read the standard form for each behavior project. An IBM mainframe computer stored the daily behavior frequencies and detailed description for each project. Data could be deposited for less than \$1.00 per project.

Teachers could ask questions of the Behavior Bank to help their teaching. Researchers could ask questions to test their ideas and theories. Teacher trainers and researchers did not have to collect data any more to check ideas that were not yet in the literature. They only had to ask their questions of the projects in the Bank. The Bank did not sell access to its data. To share you had to contribute (Koenig, 1971b).

Over 11,947 projects were stored in the Behavior Bank by 1971 and their listings published in two volumes (Lindsley, Koenig, Nichol, Kanter & Young, 1971). In addition to the 5 compilers, there were 27 editors (depositors). There were 2,673 authors including the project behavers, managers, advisors, and trainers. Counts of the number of times in which a person appeared as either behavior,

manager, adviser, trainer, or depositor were provided for each author.

The first volume contained Procedure Lists: Editors, Authors, Pinpoints, Programmed Events, and Arranged Events. There were 1,223 different movement cycles using 1,046 different programmed events and 818 different arranged events. If the projects were laid end to end they would cover 2,359 years of daily frequencies, reaching from 1971 AD to 388 BC, or four years before Aristotle was born.

The second volume contained Summary Charts. Inexpensive graphical plotters did not exist at that time, so the Behavior Bank could neither read nor print standard celeration charts. However, the computer did print out summary charts of dots and lines for each pinpoint with five or more projects. For the first phase of each pinpoint: best, middle, and worst beginning frequencies; best, middle, and worst celerations; and best, middle, and worst ending frequencies were charted. The best celerations and best ending frequencies were summarized next. Finally, the best frequency and celeration multipliers (now called jumps and turns) were drawn completing each project's summary chart.

These volumes never sold well, but *Precise Behavior Facts* is still available from Behavior Research Company. By November 1973 there were 32,192 projects stored.

The Behavior Bank failed because the people who sent in the projects did not ask the bank questions. Maybe we should have sold access, and non-depositors might have asked questions. Our depositors really didn't want to know the facts about classroom behavior, even though they all said they wanted to know. Almost no one asked.

Hasn't worked yet.

BEHAVIORGRAMS

Our standard charts and the standard forms inputting behavior projects to the Behavior Bank led us to Behaviorgrams. The idea was a one page form to check out and fill in blanks to describe new ideas and methods that worked in classrooms. The size of the produced celerations would be reported. The sheet would be photo-offset and published. We hoped Behaviorgrams would shorten the writing task and help teachers share ideas. Haven't worked yet.

PRECISION AS AN ADJECTIVE

We chose the term "Precision Teaching" to describe using frequency and standard celeration charts (called standard behavior charts at the time) for three reasons. First was to separate our classrooms from Applied Behavior Analysis classrooms that mostly used percentage of the time observed behaving or percent correct on student work sheets. Second was to describe the measurement detail - the direct recording of each and every classroom behavior in real time as it occurred. And third was to make our method an adjective, so professionals could append the name of our method to their professional noun or verb to describe their application.

Thus we could have Precision Counseling, Precision Social Work, Precision Coaching, Precision Supervision, Precision Administration and Precise Personal Management. We hoped this would leave the professional egos intact and the adjectives "Precision" or "Precise" would describe the use of our standard cross-disciplinary methods.

Precise Personal Management (Zemke, 1974) and Precision Therapy (Johnson, 1972) got some early use by Ann Duncan and her students. But as far as I know, only Precision Social Work (Green & Morrow, 1972) and Precision Nursing (Dean, 1973) added "Precision" to the name of their specialty.

Hasn't worked yet.

PLAIN ENGLISH

We chose plain English to name new procedures and new discoveries. We used plain English for three reasons. (1) Plain English is actually more precise than higher order, academic English which prefers words like variability in place of bounce, spread, consistency, repeatable, or reversible. For example, fire (combustion) is consistent, seldom repeatable, and never reversible.

(2) Using plain English would widen our base across professional specialties, and also across the amount of training within a specialty. Not only would Precision Social Workers be able to rapidly learn to use the Plain English words, but beginning Precision Social Workers would learn the words as rapidly as fully trained Social Workers would learn them.

(3) Mounting evidence suggests that the most successful creative thinking at the frontiers of

science is done in Plain English. We have the most experience in our childhood language, therefore we are most comfortable and most assured using it as a tool. Comfort and assurance increase the chances of success in trying to understand difficult and complex new problems.

Pat McGreevy worked harder than the rest of us in furthering Plain English in our communications. He printed and passed out "Plain English" T shirts. I still have mine, it is white with dark brown lettering. He titled his book *Teaching and Learning in Plain English* (McGreevy, 1981). He named his company that first published the *Journal of Precision Teaching*, "Plain English Publications." The first of the seven criteria for accepting publication material in the Journal was "1) be written in plain English" (McGreevy, 1980).

Recently, in reviewing an article for the Spring 1991 issue of the *Journal of Precision Teaching*, the excessive use of passive constructions, and the long convoluted sentences made it almost impossible for me to follow some of the logic. I ran a readability analysis on the article (*Correct Grammar*, 1990).

Guess what? Twenty-one percent of the sentences were passive. The average sentence length was 21 words. Seven percent of the sentences had over 32 words. The reading ease score was 19.4 - very difficult. The grade level required was 16 - available to only 5% of US adults!

Hasn't worked yet.

Dear, sweet, Plain English, why have we abandoned you?

CHILD KNOWS BEST

The "child knows best" was adapted from Skinner's phrase "the rat knows best". In practice it meant that each learner self recorded, charted, decided and then presented his or her own improvement procedures. Each learner self managed as teachers taught and coached self management methods (Lindsley, 1971).

Learner self management had five very important effects. (1) It cost less than teacher or observer recording. (2) It produced records as reliable and much more valid than other recording. (3) The effects produced were usually larger than teacher managed effects. (4) It developed a trust of the learner in contrast to the erosion of trust produced by double checking of counts by teacher and

observer. (5) The learners developed higher order self management skills to take with them in later life.

We found that the first child in a classroom who learned to chart taught the rest of the children more effectively than did the teacher. A color slide and audio tape of 6 year old Stephanie Bates was widely used in teaching charting at workshops and schools (Bates & Bates, 1970, 1971).

The first issue of the *Journal of Precision Teaching* had a child (yet to be named) on the editorial board.

The special spring 1971 issue of *Teaching Exceptional Children* was dedicated to Precision Teaching with Ann Duncan as guest editor. Nineteen years later the special spring 1990 issue also covered Precision Teaching with Richard West and K. Richard Young as guest editors.

Comparing these two special issues shows what happened to Precision Teaching in 19 years. The number of authors per article went from 1.1 to 3.0. The number of teacher authors went from 6 (35%) to 5 (14%). One 1990 article had 5 authors and only 3 references. The number of program coordinator authors went from 3 (18%) to 7 (19%). The number of building principal authors went from 0 (0%) to 4 (11%). The number of child authors went from 3 (18%) to 0 (0%). The number of university professor and graduate student authors went from 4 (24%) to 19 (53%).

The Council for Exceptional Children has two journals, one for researchers and one for teachers. It looks like we are converting our failed teacher journal into a researcher journal. That still won't solve the problem. It actually is avoiding it. We will reinforce ourselves for pages published rather than bigger child learnings. We will place ourselves under the same contingencies that have come close to destroying university research. But, our teachers will still have no journal to read and write in.

In summary, in 19 years the portion of child or teacher authoring divided by 10 while the portion of school official authoring doubled, and the portion of university authoring doubled.

The exceptions to this loss of child self-management are the private non-profit school programs described below. The Ben Bronz Academy has an exceptionally high degree of learner involvement in its program. It is an exemplar of "the child knows best."

Also, here and there a hold-out still works to have children count and chart their own behavior. Kathleen Liberty and Mary Ann Paeth recently described self-recording devices for use by severely handicapped children (Liberty & Paeth, 1990).

Where have all the children gone?

Into photographs. Into photographs.

The 1971 issue had 44 (48%) child photographs and 41 (52%) adult photographs. The 1990 issue had 14 (64%) child photos and only 8 (26%) adult photographs. In other words in 1990 we picture the children twice as much but use them as authors not at all. A drawing on page 4 of the 1990 issue illustrates this trend. It shows a child sitting at a desk on the stage of a compound microscope through which a teacher peers with pencil behind ear and clipboard under arm. The child has become an object for teacher microscopy.

Where have all the children gone?

Under the teachers' microscopes.

INNER BEHAVIORS

Teachers who limit themselves to recording only external, reliability tested behavior, lose access to their pupil's thoughts and feelings. Ann Duncan and her students at Yeshiva University extensively researched adult and child charting of inner behaviors (Duncan, 1971b). Abigail Calkin compared first and second graders' perceptions of facts learned with their feelings of fun and freedom under different curricula and films. She found that free and restricted feelings follow the same laws as external behaviors (Calkin, 1979). Calkin maintains her interest in charting inners today. However, few others do.

The spring 1971 *Teaching Exceptional Children* Precision Teaching issue had 2 (13%) of its 15 articles on inner behaviors. The spring 1990 *Teaching Exceptional Children* Precision Teaching issue had none.

Worked but has lost ground.

PRECISION TRAINED BUILDING PRINCIPALS

In 1971 many of the special education teachers who we had trained to precision teach reported back to us that they were ordered not to use charts by their

building principals. I decided that we should train some precision principals from the ground up. The plan was for me to transfer from the special education to the educational administration department. There I recruited experienced precision teachers who wanted administrator credentials. After receiving their doctorates and administrators certification, they should be able to set up their own school-wide Precision Teaching programs.

I should have known better!

Ann Starlin surveyed fifteen principals trained in Precision Teaching (Starlin, 1986). Seven (47%) had discontinued charting. Seven (47%) had at least a little charting going on in their school. Only one had a building-wide program with all teachers and students using Precision Teaching. That had been the goal for training precision administrators. Our success rate was 1/15 or 6%! Dismal for 10 years work.

Public school principals have no power to make instructional decisions for the school. All they can do is suggest. One disgruntled teacher can disgruntle a parent or two. If the disgruntled parent complains to the superintendent, or even worse to a board member, the principal is told to go slow.

Rarely works.

PUBLIC SCHOOL EXTERNALLY-SUPPORTED PROGRAMS

Peggy Albrecht Gayler surveyed ten major school Precision Teaching programs (Albrecht, 1984). Two of these (Father Flanagan's Boys Town and Spaulding Youth Center) were private schools and will be summarized below. Two of the eight: Seattle, Spokane, Tacoma-SST project PERFORM, directed by Harold Kunzelmann and Shawnee Mission Kansas project PRODUCT, directed by Henri Sokolove received external federal support with no real local support. Both of these did not survive beyond their first three years of federal funding.

The notion that federal money is seed money and the planted seeds will continue to grow after the federal funds stop is wrong. What actually happens, is that the school district would lose face if it could continue the program without federal funds. Why did they take the money in the first place if they can do it now with only local funds?

Work for a while but don't endure.

PRIVATE NON-PROFIT AGENCIES

Private not-for-profit agencies seem to be able to run Precision Teaching programs for a few years, but they also do not endure. If they get too big and too successful, they attract hostile take-over artists. One or two members of the board arrange for a political friend to take over the agency. The new director kills the Precision Teaching program.

Hostile take-over then slaughter killed the Precision Teaching project at the University of Florida. A dean took it over, in a year or so replaced the director, then killed the project.

Hostile take-over slaughter killed Operation Upgrade, Kansas City, Missouri (Johnson, 1971a, 1971b). The Kansas City school district took over the project; a year later the director, Nancy Johnson, was found tardy on routine reports and replaced. The next year the project was killed.

Hostile take-over then slaughter killed the precision program of Big Brothers of Kansas City. Ron Holzschuh started Big Brothers of Kansas City and set up its precision management program at the same time. A few years later, the board decided not to add a Big Sisters program. A separate Big Sisters program was formed directed by a former city health department professional administrator. A year later the board merged the two programs into Big Brothers, Big Sisters of Kansas City directed by a professional administrator. Ron resigned and the program was killed.

Exceptions to this vulnerability of non-profit agencies are the two excellent programs at Father Flanagan's Boystown, Omaha, Nebraska, and Jacksonville State University, Jacksonville, Alabama.

In 1979 the Boystown program started by requiring all teachers to use Precision Teaching after formal training. Only 2 out of 63 teachers quit. Directed by John Downs, the program is going into its eleventh year. The costs have decreased from \$220 per teacher in 1979 to \$35 per teacher. This extremely effective program shows what can be done with full administrative support.

I have never heard of a public school that could require teachers to teach in a certain way.

In 1977 the Center for Individualized Instruction at Jacksonville State University, Jacksonville, Alabama was started by Charles Merbitz. The Center has continually grown and has prospered

without external grant support since 1986. It currently teaches 4000 students per year using a staff of 10 faculty and 40 students. The Center combines Precision Teaching methods with computer-based and Personalized Instruction. Directed by Claudia McDade, the Center is working with TeleRobotics International, Inc. to get their course authoring system (CourseBuilder) to follow frequencies high enough to generate fluency.

A slightly less direct take-over occurred at Spaulding Youth Center, Tilton, New Hampshire. Welles Hively was director and built a comprehensive, effective Precision Teaching program in both classrooms and residences. Hively resigned to go back into research in St. Louis. The board replaced him with an open classroom, non-structured type of director, even though two highly qualified Precision Teaching trained administrators were applicants. The board said, we have had seven years' success with this highly structured thing, now it's time to try something else.

If they work, they need very strong administrative support, or they're killed.

CURRENT SUCCESSES

PUBLIC SCHOOL LOCALLY SUPPORTED PROGRAMS

Five of the major school programs in Albrecht's survey were public school programs with strong local district and/or state financial and administrative support (Albrecht, 1984). As Table 1 indicates, all five of these (100%) have grown and prospered for 10 to 20 years.

The message is clear. Local support is crucial in starting and maintaining the public school Precision Teaching programs. Second, the cost of the program divided to figures in the \$5 to \$150 per teacher after the initial training is over. (The \$400 per teacher for the Minneapolis project was inflated due to a validation phrase.)

PRIVATE NON-PROFIT SCHOOLS

Quinte Learning Center, Belleville, Ontario, directed by Michael Maloney; the Morningside Academy, Seattle, Washington, directed by Kent Johnson; the Ben Bronz Academy, West Hartford, Connecticut, directed by Aileen Stan-Spence and Ian Spence; and the Houghton Learning, directed by Elizabeth Houghton; all have successful, self-supporting Precision Teaching programs.

TABLE 1

PUBLIC SCHOOL LOCALLY SUPPORTED PROGRAMS

<u>Year Start</u>	<u>City and State</u>	<u>First Director</u>	<u>Grades</u>	<u>\$/Teacher First Year</u>	<u>\$/Teacher in 1984</u>
1970	Bemidji, MN	Clay Starlin	K-6	\$25	\$5
1972	Minneapolis, MN	Marie Blackburn	K-12	\$125	\$400
1973	Great Falls, MT	Ray Beck	K-12	\$8000	\$90
1977	Weber County, UT	Betty Nowak	K-9	\$400	\$10
1980	Orange County, FL	Marilyn Heffren	K-9	\$5000	\$150

These private schools may well be the only places left with program-wide learner self-charting. The Ben Bronz Academy has a widely based learner managed program with the students generating their own newspaper and governance.

The Morningside Academy has recently moved into adult literacy, combining practice timings with direct instruction and Markle instructional design principles. Morningside can guarantee a one year gain in reading level within only five weeks.

These programs usually start out by running summer tutoring to catch children up to grade level before the fall semester. This summer tutoring success attracts parents who want after school and weekend tutoring throughout the year. It takes about two years to firmly establish these programs. By that time local supporters usually demand a full time program adding about a grade level a year.

The key here is to maintain full control of the staff, the curriculum, the funds and the board. Since it is a non-profit agency, it must have a fairly large board. Some make the mistake of having a broadly represented board. The broader the board, the greater the tendency for someone on the board to want to try something else.

These non-profit private schools are now working well, but are probably dependent on their current directors.

OUR MAJOR PROBLEM: NO LEARNING COMMISSIONS

All of the above failures that haven't been accepted yet were highly effective. However, they were too

effective for school systems dedicated to empowering and securing educators. Maximizing learning threatens the security of teaching based on classroom or credit hours.

It appears that the more social, the more gregarious the precision teacher, the more fragile are his or her skills. This is because the more the precision teacher is influenced by social consequences, the easier it is for the educational establishment to use these social consequences to counter-reinforce the teacher's skills. This is a catch-22. The better the social skills of the teacher, the more susceptible to losing their skills.

Who keeps going the longest in the face of counter-reinforcement? The nerd, the misfit, the marcher to a different drummer, is most apt to continue in the face of strong social counter-reinforcement. But even they gradually lose the skills that are not supported by their environment. People say they have weakened, softened, mellowed, or matured.

Most of our academically placed researchers have worked on smaller and smaller problems. Reducing to further details is the trend in most sciences. They research details like, are 30 second timings more cost-effective than 60 second timings? They dream up new, more detailed chart codes. They try to reconcile charting with both traditional behavior analysis (multiple base lines) and traditional educational methods. For example, they conduct t-tests on the accuracy of predicting from celeration lines drawn on multiply charts compared with those drawn on add charts. They do this with classroom learning of less than times 1.1 celeration per week. They do not realize that every possible transformation fits a line of times 1.0 equally well.

The lower the celeration, the less difference the type of chart makes. All such topics are trivia compared to our major problem.

Our **PROBLEM** is global, is social, is organizational. We need to find a way to positively reinforce, to **REWARD** ourselves, our administrators, our teachers, and our learners for more effective learning. We need **LEARNING COMMISSIONS**. Until we do that, at best we will become a small, academic group, arguing with each other about trivia that no one else even understands, much less cares about. Then our journals can be in jargon, since there will be no need for plain English.

Our researchers, our university people, should work to find systems to arrange major rewards tied to the magnitude of behavior change produced. Our researchers should find ways to arrange these payoffs for the entire Precision Teaching team. Researchers, administrators, supervisors, teachers, aides, tutors, parents, children, and janitors all should receive some commission when each learner accelerates his or her performance.

What is the best mix of learning commissions for production and salary for security? Precision Teaching methods are so effective that we would actually be most secure on learning commissions alone, without any salary. The fact that we do not put ourselves on learning commissions proves that we ourselves do not realize the power of our methods. If we did, we would feel more secure on learning commissions than on salaries controlled by unions and administrators. We have the only method which can continually monitor, compare, and signal major accelerations and decelerations in performance. If we were on learning commissions, our effectiveness would be our security.

If we can reward ourselves, our administrators, our teachers, our parents, our learners for celeration, then all else will take care of itself. Our public will not want learning until they are paid well for it. We will not want more learning until we are paid for it.

FUTURE POTENTIAL

PRIVATE FOR-PROFIT SCHOOLS

It seems to me that for-profit schools promise our most secure future. We need only work out the pricing structure. How do parents pay for learning accomplishments rather than tuition? How do we amass the capital to deliver the teaching before we get paid for the accomplishment? How do we

certify the accomplishment? We know how to measure learning and fluency, but how do we certify it? Even more importantly how do we certify its absence before learning? Clearly, we could have parents place money in a bank escrow account. When their learner reaches a sub goal, then we pay the entire school team. Each member of the team gets an appropriate portion as a learning commission. The learner would, of course, be included.

The gain of one year in reading level in five weeks produced at the Morningside Academy could be easily cost accounted. A 30 to 50% profit could be added, and a preliminary charge per grade level determined. This would provide a start for escrow payment prior to instruction. Then the learning commissions earned by each team member could be determined. These learning commissions would be delivered upon learner accomplishment.

We clearly have the learning skills to do this now. What we lack is the financial details, the logistics. Of course we also lack the courage of our own conviction. We lack trust in our own methods.

Anyone ready for such a venture can count me in as an investor and major participant.

HOW TO IMPROVE YOUR OWN PRECISION SKILLS

You can maintain your skills with weekly or monthly local chart sharing sessions. Each participant has 2 minutes at an overhead projector to share a chart. After all have shared a chart, the sharings recycle and each participant presents his or her second chart. Sharings recycle until all charts have been shared.

However, I have seen little evidence that chart sharing improves precision skills. It maintains skills. It broadens skills, by rapidly and efficiently communicating different charting applications. But it is not enough to generate major new discoveries.

Major advances in Precision Teaching methods have leveled off. Is this because we have learned all there is to know about learning? Or is this because we already know more about learning than we need to know to meet our current demands?

We already get in trouble in public schools by teaching too much. The first grade precision teacher who ends up the school year with the whole class reading at third grade level is in deep trouble with the third and second grade teachers. This

teacher's accomplishments will not only be ignored, but will actually be punished

You need a reason to improve your own Precision Teaching skills. Unless rewarded for producing more learning, your skills will atrophy rather than improve. The best way to improve your skills is to conduct afternoon, weekend, and summer tutoring based totally on learning commissions. You can start in a room of your home, and have only your time to invest. It will take some time to learn the appropriate price schedule for learnings. It will take about two years for the community to learn of your success and for clients to refer other clients.

When we are finally producing learning for profit, and making a profit, Precision Teaching methods will be secure in our society. Major Precision Teaching discoveries will once again be frequent.

References

- Albrecht, P. L. (1984). *Summary of ten major school programs*. Unpublished doctoral dissertation, University of Kansas.
- Bates, S., & Bates, D. F. (1970). *Charting rates with Stephanie Bates* (36 Color slides with accompanying 18 minute recorded narration). Kansas City, KS: Behavior Research Co.
- Bates, S., & Bates, D. F. (1971). " and a child shall lead them." Stephanie's chart story. *Teaching Exceptional Children*, Spring, 111-113.
- Binder, C. (1988). Precision teaching: Measuring and attaining exemplary academic achievement. *Youth Policy*, 10 (7), 12-15.
- Binder, C., Haughton, E., & Van Eyk, D. (1990). Increasing endurance by building fluency: Precision teaching attention span. *Teaching Exceptional Children*, 22 (3), 24-27.
- Caldwell, T. (1966). *Comparison of classroom measures: Percent, number, and rate* (Educational Research Technical Report). Kansas City: University of Kansas Medical Center.
- Calkin, A. B. (1979). *Measuring and comparing perceived facts, fun, and freedom*. Unpublished doctoral dissertation, University of Kansas.
- Correct Grammar* (1990). Macintosh version 1.0.7, Lifetree Software, Inc.
- Dean, D. H. (1973). An analysis of the effects of using direct measures in a competency based professional education program: An example in nursing. *Dissertation Abstracts International*, 1973, 34, 5577A. (University Microfilms No.74-6820).
- Duncan, A. D. (1971) The view from the inner eye: Personal management of inner and outer behaviors. *Teaching Exceptional Children*, 3, 152-156.
- Fink, E. R. (1968). *Performance and selection rates of emotionally disturbed and mentally retarded preschoolers on Montessori materials*. Unpublished master's thesis, University of Kansas.
- Green, J. K., & Morrow, W.R. (1972). Precision social work: General model and illustrative student projects with clients. *Education for Social Work*. Washington D.C.: Council on Social Work Education.
- Hilts, P. J. (1974). *Behavior mod*. New York: Harpers Magazine Press.
- Holzschuh, R., & Dobbs, D. (1966). *Rate correct vs. percentage correct*. (Educational Research Technical Report). Kansas City: University of Kansas Medical Center.
- Johnson, T. S. (1972). Precision therapy is the way to go. In J. B. Jordon & L. S. Robbins (Eds.), *Let's try doing something else kind of thing* (pp. 41-50). Arlington, VA: Council for Exceptional Children.
- Koenig, C. H. (1971a). *Charting the future course of behavior*. Unpublished doctoral dissertation, University of Kansas.
- Koenig, C. H. (1971b). The behavior bank: A system for sharing precise information. *Teaching Exceptional Children*, 3, 157.
- Liberty, K. A. & Paeth, M. A. (1990) Self-recording for students with severe and multiple handicaps. *Teaching Exceptional Children*, 22 (3), 73-75.
- Lindsley, O. R. (1956). Operant conditioning methods applied to research in chronic schizophrenia. *Psychiatric Research Reports*, 5, 118-139.
- Lindsley, O.R. (1972). From Skinner to precision teaching: The child knows best. In J. B. Jordon & L. S. Robbins (Eds.), *Let's Try Doing Something Else Kind of Thing* (pp. 1-11). Arlington, VA: Council for Exceptional Children.

Lindsley, O. R. (1977). What we know that ain't so. Invited Address, Third Convention Midwestern Association for Behavior Analysis, Chicago, IL.

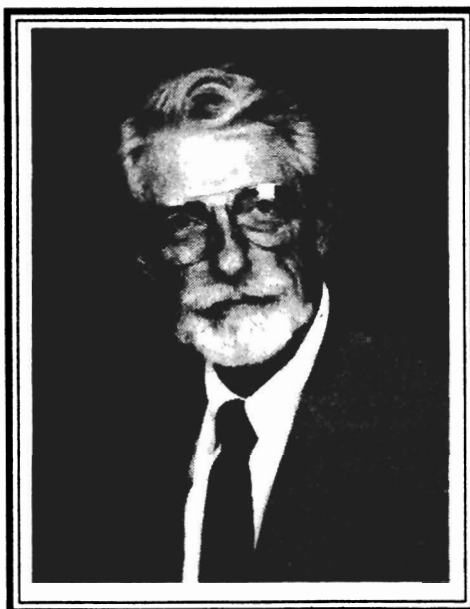
Lindsley, O. R., Koenig, C. H., Nichol, J. B., Kanter, D. B., & Young, N. A. (1971). *Precise behavior facts*. Kansas City: Precision Media.

Starlin, A. (1972). Sharing a message about curriculum with my teacher friends. In J. B. Jordon & L. S. Robbins (Eds.), *Let's Try Doing Something Else Kind of Thing* (pp. 13-19). Arlington, VA: Council for Exceptional Children.

Starlin, A. H. (1986). *Survey of fifteen principals trained in exploring their use of the standard celeration chart*. Unpublished doctoral dissertation, University of Kansas.

Starlin, C. (1971). Peers and precision. *Teaching Exceptional Children*, 3, 129-140.

Zemke, R. (1974). *Getting started counting and charting: A beginners guide to Precise Personal Management*. Tilton, NH: Spaulding Youth Center.



Ogden R. Lindsley

Dr. Ogden Lindsley is Founder of Precision Teaching and Professor Emeritus at the University of Kansas. For further information, contact Og at P.O. Box 157, RFD #1, Lawrence, KS 66049.