JOURNAL
OF
PRECISION TEACHING

VOLUME 1, NO. 4
The *Journal of Precision Teaching* is dedicated to the direct and continuous measurement of behavior, the recording of frequency and the representation of celeration on the Standard Behavior Chart and Chart-based decision-making. The purpose of the *Journal of Precision Teaching* is to accelerate the sharing of scientific and practical information among its readers. To this end, both formal manuscripts and informal data-sharing are encouraged.

Material submitted for publication should meet the following criteria: (1) be written in plain English, (2) be limited to eight typed, double-spaced pages of narrative, (3) use the *Journal of Precision Teaching Standard Glossary and Charting Conventions*, (4) contain data displayed on the Standard Behavior Chart, and (5) be submitted in triplicate to the editor. Each manuscript will be reviewed by the editor and one consulting editor, both of whom must approve it prior to publication.

The *Journal of Precision Teaching* is published quarterly in April, July, October and January. Each volume begins with the April issue. The annual subscription rate is $16.00 to libraries and $12.00 to individuals, payable in U.S. currency. The single copy price is $4.00. Advertising rates are available upon request.

Submissions, subscriptions and other correspondence should be addressed to the *Journal of Precision Teaching*, Patrick McGreevy, Editor, 3952 N.W. 82nd Street, Kansas City, Missouri 64151.

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Library of Congress ISSN number: 0271-8200

As part of its goal to disseminate research, the University Affiliated Facility for Developmental Disabilities (UAF) at the University of Missouri in Kansas City, under the direction of Carl Calkins, assisted with the production of this Journal.
"IF YOU CAN'T SAY SOMETHING NICE . . . ."

Elizabeth Shryock, Marie Eaton and Margie Bogert
Western Washington University

I felt overwhelmed when I arrived to begin my student teaching assignment in a primary learning disabilities class. There were only 12 children, yet they seemed to require even more time and attention than the 32 children I had just left.

During the first week I observed two children extensively - one, a 10-year-old girl named Allison. I was intrigued with her, particularly because of her extremely negative attitude. Not only did she say rude and hurtful things to others without provocation, but she put herself down as well. When she was given a task to do she would repeat the directions to herself, adding statements like: "Draw it this way, dummy," or "You don't even know what you're doing, stupid."

As the days passed I noticed other behaviors that resulted from her lack of social skills. Many times she directed negative comments to the whole class, such as, "You don't know where I went Saturday," or "You can't call me. You don't know the number." If she got no reaction, she singled out someone, used his/her name, and repeated whatever she had said. Again, if the person didn't react, she physically moved into range and fired again. Many times these statements caused the situation to escalate into physical confrontation and resulted in disciplinary action from the teacher to those involved.

I quickly realized Allison's negative statements acted as a catalyst for inappropriate behavior within the class. Her taunts and cynical remarks either precipitated potentially violent reactions from the other students or resulted in Allison's isolation from the classroom community. In addition, Allison also lacked appropriate responses to such comments as, "How are you today?" Most times she would say nothing; if pursued, she either responded "Fine," or "You're welcome," regardless of what was said or asked.

In order to see if my suspicions were valid, I kept track of Allison's negative statements for three days. They were very high! She said 14 negative things in just one 20-minute episode while I watched. She did not make any positive remarks during those three days. I hoped that if we could help Allison think of herself and others more positively, she might be able to work and interact more successfully in our class. I discussed Allison's problems with my supervisor and fellow student-teachers at one of our weekly seminars, and together we came up with some ideas.

I decided to help Allison change the way she talked both to herself and to others. We began a self-counting project to help her become aware of her negative statements. Allison had a point sheet on her desk divided in half, with a smiling face on one side and a frowning face on the other. Each time she said something positive, she marked one point on the smiling side. For every negative comment she marked one point on the frowning side. Allison did all of the recording, and when five points were tallied on the positive side, she received five minutes free time in the gym. If five points were accumulated on the negative side, she lost five minutes of recess.

I kept track of Allison's progress on a Standard Behavior Chart. I recorded her positive statements with dots and her negative statements with "x"s, so
that I could see if she was improving. This information is shown on Chart 1. On the first three days I counted her statements for only 20 minutes each day. Once she began to self-count we collected that information all day. We set her aim at 15 positive statements each day.

I also kept a log of the things she said. Some of the highlights are shown in Figure 1.

The day that the system was implemented there was an immediate drop in verbalizations of any type (see Chart 1). There were no positive statements, yet only two negative ones. On the following day her positive comments went up to three; the negative ones stayed at two.

The third day proved interesting. Allison called out my name (using anyone's name positively was a rarity) and stood in front of me, shifting her feet, appearing rather nervous. After a minute she repeated my name, stuttered and repeated herself a bit, then finally blurted out in one breath, "That's a nice dress you have!"

In the month that I had been in that class it was the first time I had heard her say anything that even closely resembled a compliment! Whether she meant it at this point was not important. What was important was that she thought and then heard herself verbalize something positive and experienced my response.

The next day while we were sitting around the big table eating together, one of the children asked Allison what kind of sandwich she had in her lunch. Allison's initial response was snotty and negative: "Peanut butter and jelly, what else?" Before I reminded her to mark her chart, she slapped her hand over her mouth and said, "I mean (smile), peanut butter and jelly," with all the sugared sweetness she could muster. I could not believe what I had heard. Not only did she figure out a positive way to respond, but she also caught herself and corrected her response.

Allison's progress was fairly steady, and she pulled out way ahead of my hopes. She reached her acceleration aim within 11 days, with an acceleration of x 2.4, and a deceleration of /1.2. We agreed to continue self-counting because there were still some negative statements. She continued to improve, with an acceleration of x 1.2 and a deceleration of /1.5 for the whole project. After 25 days into the project she had 16 positive verbalizations and no negative ones.

My heart was warmed that day when Allison came up to me and said, "Miss Shryock, I want to thank you for all the nice things you've done for me." My first reaction was to reach down and hug her, but we aren't there yet. Maybe someday we shall be there together. In the meantime we shall each continue to put one foot forward a step each day.

Elizabeth Shryock is a recent graduate of Western Washington University's special education program. Marie Eaton is an assistant professor at Western Washington University, and was Ms. Shryock's supervisor during her student teaching experience. Western Washington University is located in Bellingham, Washington. Margie Bogert is a primary learning disabilities teacher in the Edmonds School District, Edmonds, Washington. She was Ms. Shryock's cooperating teacher.
Chart 1. Allison's Chart

SELF-COUNT
EARN-LOSE POINTS

SUCCESSIVE CALENDAR DAYS

M. EATON  F. SHRYOCK
SUPERVISOR  ADVISER

E. ALLISON
MANAGER

Western Washington University
DEPOSITOR

Bellingham, Washington
AGENCY

M. EATON/ALLISON
TIMER

SUCCESS'VE CALENDAR DAYS

ALLISON _L THINKSAY --

SUPERVISOR ADVISER MANAGER BEHAVIOR LABEL COUNTED

Wesitern Washington University Bellingham, Washington M. EATON/ALLISON STATEMENTS
Figure 1

TEACHER'S LOG

Day 3  "That's a very nice dress you have." First nice comment ever! VERY STRAINED.

Day 4  "Peanut butter and jelly (snotty voice)." "Oops, I mean, peanut butter and jelly (smile)."

Day 5  "Miss Shryock, that's a pretty dress you have on." "I love your blouse." "That's pretty."

Day 7  Opened door for me and said, "Ladies first." Generally a more pleasant child.

Day 9  Another child put on management program. She didn't get as much attention.

Day 10  Bad morning. Afternoon improved.

Day 11  Super day! Seemed generally happier.

Day 12  Zero negative statements! "Miss Shryock, I want to thank you for all the nice things you've done for me."

Day 15  Super day!!

Day 16  "Miss Shryock, will you be my friend?"

Day 19  She came with a smile for the first time.

Day 23  It's starting to generalize. She said, "I like you" to the aide.
Perennial problems in secondary compensatory education are 1) determining which students should be enrolled in the remedial program and 2) setting static aims for these students. Exactly what constitutes an acceptable percent score or correct/error frequency for a particular academic behaviour at a certain grade level is difficult to intuit. A number of solutions have been suggested (Haring, Lovitt, Eaton & Hansen, 1978), and the one addressed in this paper is that of peer-comparison (White & Haring, 1976). The procedure involves surveying a small group of "average" students at various secondary grade levels in order to determine how well -- or how poorly -- they perform on the academic tasks that are of interest. The data gleaned from such a survey would enable the instructor to decide upon an acceptable percent or frequency instead of having to resort to the blanket x 1.25 for corrects and /1.25 for errors when setting dynamic aims.

Recently there have been attempts to gather such data with an elementary-aged population (Howell, 1979a, 1979b; Gentry & Clark, 1979), but little has been done at the junior secondary or middle school level. Hopefully, the data contained in this article will help to fill in this gap.

Another important use for the data would be as a screening instrument -- i.e., as a means of identifying those students who should be involved in the school compensatory program. Standardized tests are useful for placement and prediction (Estes & Vangh, 1978), but they have little or no diagnostic value. In contrast, the peer-comparison figures presented here would also be useful in pinpointing specific tasks when establishing a remedial program for a student. Administration of the screening instrument would take approximately 130 minutes (115 minutes of actual testing and 15 minutes of directions, etc.), and the results would complement teacher referrals, past achievement records, etc.

One final point should be emphasized. The question that was constantly being asked when the content of the survey material was being decided upon was the following: What are those skill/movement combinations most commonly employed in secondary teaching situations? In other words, do the skill/movement combinations that have been pinpointed reflect the combinations that are necessary for success in the "typical" secondary classroom? The results of the author's compilations are presented below.

Method

Subjects

The S's were approximately 60 grade 8, 9 and 10 students of "average" ability in the curriculum areas of language, arts and mathematics. All students were in attendance at the same average-sized, rural junior secondary school in British Columbia. Selection procedures involved having subject teachers
nominate students of average ability in their respective courses (English and Mathematics), and the choices were corroborated by a check of the permanent record cards (students with a history of "C" letter grades were prime candidates). The S's were "put through their paces" in late January -- i.e., approximately the mid-point of the academic year.

Description of Tasks

Obviously, any list of academic tasks that one wished to classify as "basic" or "fundamental" would most likely be both varied and extensive. Nevertheless, it seems reasonable to assume that there is indeed some combination of skills and movements in different subject areas which would form an integral part of a junior high school student's repertoire of academic behaviours. Accordingly, the author decided that information regarding some of these basic tasks would be helpful in the setting of static aims for less able students. These tasks are presented in Tables 1 and 2.

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<th>MOVEMENT</th>
<th>LANGUAGE ARTS</th>
<th>MATHEMATICS</th>
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<td>See-to say</td>
<td>S-S</td>
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<tr>
<td>See-to-mark</td>
<td>S-M</td>
<td>2</td>
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<td>See-to-write</td>
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<td>Hear-to-mark</td>
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<tr>
<td>Hear-to-write</td>
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<tr>
<td>Writes words</td>
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<td>1</td>
</tr>
<tr>
<td>Writes numbers</td>
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<td>-</td>
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<td>TOTAL</td>
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Table 1. Breakdown of Movement Types
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<th>Type of Data</th>
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<th>MIN. %</th>
<th>FREQUENCY</th>
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<td>S-W</td>
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<tr>
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<td>Comprehension Passage *</td>
<td>S-W</td>
<td>&quot;20&quot;</td>
<td>/</td>
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<tr>
<td></td>
<td>Listening Passage *</td>
<td>H-W</td>
<td>&quot;20&quot;</td>
<td>/</td>
</tr>
<tr>
<td>Spelling</td>
<td>Spell Words *</td>
<td>H-S</td>
<td>&quot;2&quot;</td>
<td>/</td>
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<tr>
<td></td>
<td>Spell Words *</td>
<td>H-W</td>
<td>2</td>
<td>/</td>
</tr>
<tr>
<td></td>
<td>Mark Misspelled Words</td>
<td>S-M</td>
<td>&quot;4&quot;</td>
<td>/</td>
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<td>Compositional Writing</td>
<td>Compose Total Words</td>
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<td>&quot;5&quot;</td>
<td>/</td>
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<td></td>
<td>Paragraph Desc. Adj.</td>
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<td></td>
<td>(10 sent) Adverbs</td>
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<td></td>
<td></td>
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<td></td>
<td>Action Verbs</td>
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<td></td>
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<td></td>
<td>Mark errors in paragraph S-M</td>
<td>5</td>
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<tr>
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<td>S-W</td>
<td>&quot;5&quot;</td>
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<td>Scale /</td>
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<tr>
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<td>Read Numbers</td>
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<td>Multiplication</td>
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<td>/</td>
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<td>Division</td>
<td>S-W</td>
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<td>/</td>
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<td>Per Cent</td>
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<td>Decimals (-)</td>
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<td>Decimals (x)</td>
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<td>Decimals (/)</td>
<td>S-W</td>
<td>1</td>
<td>/</td>
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<td>S-W</td>
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<td>Fractions (x)</td>
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<td>Fractions (/)</td>
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<td>/</td>
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<td></td>
<td>Multiplication Tables</td>
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<td></td>
<td>Numbers Written</td>
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<td>1</td>
<td>/</td>
</tr>
<tr>
<td></td>
<td>Mental Arithmetic</td>
<td>H-W</td>
<td>2</td>
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</table>

**TOTAL** 115 Min.

* Differs for each grade level
" " Approximate time required

Table 2. Description of tool skills/movements
Results
Median and range scores for the tasks outlined in Table 2 are displayed in Charts 1 through 4. The numbers at the bottom of the Charts indicate the number of the task (see Table 2).

Conclusion
In summary, it is hoped that the proposed instrument would be helpful to secondary teachers for two purposes: 1) as a means of selecting students for a secondary compensatory education program, and 2) as a method of determining percent and frequency scores for the setting of static aims.

Advantages appear to be that administration of the instrument is short (150 minutes) and that a large amount of data regarding a student's ability would be generated. In addition, information concerning various movement cycles is also produced. Disadvantages are that the peer-comparison scores are school-referenced and hence not norm-referenced via statistical analysis (e.g. split-half reliability) and that -- perhaps -- the spectrum of tasks is not broad enough. Hopefully, the advantages outweigh the disadvantages.

(Note: For a description of the individual tasks presented in Table 2, please write the author, c/o P.O. Box 130, Rosedale, B.C. Canada VOX 1X0.)

References


Thomas Jones is a learning assistance teacher at the Rosedale Junior Secondary School, Drawer 130, Rosedale, British Columbia, Canada VOX 1X0.
Chart 1. Median and range percent scores for the tasks outlined in Table 2 grades 8, 9, and 10.
Chart 2. Median and range scores for the tasks outlined in Table 2 - grade 8.

T. Jones
Rosedale Junior Secondary School, Rosedale, British Columbia
Chart 3. Median and range scores for tasks outlined in Table 2-Grade 9.

T. Jones

Rosedale Junior Secondary School  Rosedale, British Columbia
DATA-SHARING

WHY WE SHOULD HAVE USED THE STANDARD BEHAVIOR CHART AND CELEBRATION:
A CASE STUDY

Donna M. Hicks, Earl Johnson and Edward M. Framer
Center for Behavioral Studies

J. W. is a 31-year-old Caucasian male who has been at the Center for Behavioral Studies for three years. When we began working with him, J. W. emitted no intelligible vocalizations, engaged in little or no productive behavior and had no social skills.

After 12 months of training, J. W.'s parents reported that he had begun making a single, occasional request. A program was then initiated to increase the frequency and variety of vocal requests in his home setting. The parents counted any audible vocal request which occurred between 3:00 p.m. and 11:00 p.m. J. W.'s parents were encouraged to model requesting behavior. These interactions were also counted. Data were returned to the Center each morning, where they were graphed on the add-subtract graph paper which we commonly used at that time. Program changes were made using this graph and changes in frequency as a guide.

The subsequent year we began keeping most program records on the Standard Behavior Chart (SBC) and using celebration. The first author decided to use the SBC and rechart J. W.'s data. Striking and hitherto unseen changes in frequencies and trends were noted. It was clear that our old graph had not encouraged us to look for trends in J. W.'s "requesting" behavior. As a result, we didn't see trends that had developed during that home program. Also, our visualization of the patterns had been hampered by the excessive length of our non-standard graph, 6 feet.

A good example of the problem can be seen by comparing phase III on the SBC (see Chart 1) to its counterpart section of add-subtract graph. The rate of spontaneous vocals was actually accelerating at x 1.4, and had we known this, no phase IV change would have been initiated at that time. However, on the add-subtract graph we "missed" the upward trend, and the initiation of phase IV apparently retarded future celebrations. The client's progress may well have been delayed.

An additional advantage of the SBC was apparent as we charted the modeling behaviors of J. W.'s parents. If anything, they appeared to be "tracking" J. W.'s behaviors, not vice versa as we had earlier believed. The SBC functioned to reduce the graph to manageable size, visualize trends, and uncover previously overlooked relationships.
Chart 1. The Standard Behavior Chart vs. add-subtract graph paper.
We hope this brief paper has demonstrated some clear advantages of the SBC over conventional, unstandardized graphs. We know that the picture this chart painted has increased the probabilities of future charting at CBS.

Donna Hicks is currently a behavioral technician, Earl Johnson is a former behavioral technician, and Edward M. Framer is the program coordinator of the Center for Behavioral Studies, North Texas State University in Denton, Texas.

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Use the enclosed form to renew your subscription to the Journal. Please do this as soon as possible to insure your receiving the first issue (April) of Volume II without delay.

THANK YOU!

PERFORMANCE AND LEARNING WORLD RECORDS

Performance Records

Tanya Kelb (Belleville, Ontario)  
See-think 1470 words per minute (silent reading)

Vicky Vachon (Belleville, Ontario)  
See-write 146 subtract facts of 18 per minute

Learning Records

Mary Hurst and Patsy (Potosi, Missouri)  
See-say 10 survival words over and over for one minute -- corrects x20 and incorrects /15 for eight data days

The Journal of Precision Teaching: Volume I

Look at How We've Grown

Patrick McGreevy

Journal of Precision Teaching

The Journal of Precision Teaching started as a small idea in October, 1979. Now, in January, 1981, at the conclusion of Volume I, the Journal has 192 subscribers in the United States, Canada, England and Australia. This growth is the direct result of "sharing" by many precision teachers.

Chart 1 shows that the total number of subscriptions accelerated by x 1.5 per 6 months during the first year. If the "sharing" continues, the initial subscription aim of 250 will be reached by April, 1981.
Look at how we've grown.

The Journal of Precision Teaching, Volume 1, Number 4, January, 1981.

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by Patrick McGreevy, Ph.D.

This book is an introduction to Precision Teaching for parents, teacher-aides, teachers, clinicians, therapists and undergraduate and graduate students. Topics covered include: movements you can count, learning channel sets, pace, correct/incorrect pairs, counting periods, practice, performance and learning, before and after teaching events, how to chart on the Standard Behavior Chart, learning opportunities, learning pictures and data-based decision making.

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STANDARD GLOSSARY AND CHARTING CONVENTIONS**
(fourth draft -- January, 1981)

Accelerating Target--a movement the behaver, manager, advisor, or supervisor expects to accelerate; the frequency is symbolized by placing a dot on the Chart.

Accuracy Improvement Multiplier--a measure of change in accuracy over time; celeration correct/celeration incorrect.

Accuracy Multiplier--measure of accuracy: frequency correct/frequency incorrect; distance from frequency incorrect to frequency correct.

Accuracy Pair--two movements, usually correct and incorrect, charted simultaneously.

Add-subtract Scale--any measurement scale on which adding and subtracting by a constant amount is represented by a constant distance.

Advisor--person who advises a manager, usually viewing Charts on a weekly basis.

Behaver--person whose behavior is displayed on the Chart.

Behavior Floor--the lowest daily frequency possible for a particular behavior; 1/number of minutes behavior can occur; symbolized by drawing a solid horizontal line on the Chart.

Bounce Around Celeration--up bounce and down bounce combined; the range of deviations of frequencies from the celeration line.

Celeration--basic unit of measurement of behavior change; change in frequency per unit time.

Celeration Aim--the expected celeration for a given movement.

Celeration Line--a best-fit, straight line constructed through seven or more continuous frequencies of a given movement on the Standard Behavior Chart.

Celeration Multiplier (turn up or turn down)--value by which one celeration is multiplied or divided to obtain a second.

Change Day--first day of a phase change; symbolized by drawing a vertical line covering that day line on the Chart.

Counting Period Ceiling--the highest frequency observable under a given counting procedure; symbolized by drawing a dash line on the Chart connecting the Saturday and Monday lines.

Counting Period Floor--the lowest frequency detectable by a given counting procedure; 1/number of minutes spent counting; symbolized by drawing a dash line on the Chart connecting the Tuesday and Thursday lines.

Cycle--distance on the Chart between consecutive powers of 10.

Day line--vertical line on the Daily Standard Behavior Chart.

Decelerating Target--a movement the behaver, manager, advisor, or supervisor expects to decelerate; the frequency is symbolized by placing an "x" on the Chart.

Double Improvement Learning Picture--both movements of an accuracy pair with celerations in the expected direction; for example

Down Bounce--the distance from the celeration line to the frequency farthest below it.

Duration--the amount of time it takes to complete one occurrence of a behavior; 1/number of minutes spent behaving.

Event-following Celeration Line--a celeration line drawn through all frequencies for a given movement just prior to a phase change.
Freehand Method—a method of visually estimating and drawing celeration lines.

Frequency—basic unit of behavioral measurement; the number of movements per unit time.

Frequency Aim—the expected phase-ending frequency for a given movement; symbolized by drawing "A" at the expected frequency on the day the aim was set.

Frequency Line—a horizontal line on the Chart; also called a counting line.

Frequency Multiplier (jump up or jump down)—value by which one frequency is multiplied or divided to obtain a second.

Geometric Mean—the appropriate method for obtaining an average on a multiply-divide scale.

Ignored Day—a day on which the behavior being measured occurs but is not charted.

Latency—the amount of time between the occurrence of a signal and the beginning of a movement; l/time from signal to start of movement.

Learning—a change in performance per unit time; also called celeration.

Learning Picture—the celeration lines of both movements of an accuracy pair viewed together; for example

Manager—person who works with the behaver on a daily basis.

Median Celeration—the middle celeration in a celeration distribution; symbolized by drawing a "<" on the Chart.

Median Frequency—the middle frequency in a frequency distribution; symbolized by drawing a "<" on the Chart.

Most Recent Celeration Line—a celeration line drawn through the last 7-10 frequencies for a given movement.

Movement—recorded behavioral event; usually specified in terms of a movement cycle with a beginning, middle and end.

Multiply-divide Scale—any measurement scale on which multiplying and dividing by a constant amount is represented by a constant distance, the "up the left" scale on the Standard Behavior Chart.

No Chance Day—a day on which the behavior being measured has no chance to occur.

Overall Celeration Line—a celeration line drawn through all frequencies for a given movement.

Performance—the number of movements per unit time; also called frequency.

Periodic Celeration Line—a celeration line drawn through all frequencies for a given movement in a specific time period, such as bi-weekly or monthly.

Phase Change—a deliberate alteration made to the behaver's environment in an effort to improve the behavior being measured.

Quarter-Intersect Method—a method for computing and constructing celeration lines.

Recorded Day—a day on which the behavior being measured has the opportunity to and is recorded.

Single Improvement Learning Picture—one movement of an accuracy pair with a celeration in the expected direction; for example

Split-middle Line—a line drawn parallel to a quarter-intersect celeration line, such that half the data points fall on or above the line and half the data points fall on or below the line.

Standard Behavior Chart—a standard, six-cycle semi-logarithmic chart that measures frequency as movements/time and celeration as movements/time/time; Daily, Weekly, Monthly, Yearly and Summary versions are available.

Supervisor—a person who views the Charts on a monthly basis.

Total Bounce—distance from the highest to the lowest frequency; analogous to range of an add-subtract scale.
Trend-following Celeration Line--a celeration line drawn through visible trends for a given movement.
Up Bounce--distance from the celeration line to the frequency farthest above it.

Dedicated to Mrs. Irene McGreevy, a very special person, and to the children, who, by sharing their Charts, taught us what we know.