

DAVID F. FRESCHI

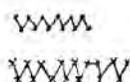
■ Recording a child's daily performance on charts provides valuable feedback for both the child and the teacher. It is an efficient, sensitive way to observe changes in behavior that may not otherwise be recognized. Through regular charting, teachers are given concrete information showing where the children are functioning (evaluation), where they are going (performance goals), and how they are getting there (growth).

At Benhaven, a private school for autistic and neurologically impaired children, teachers are shown how to use charts and how to plan effectively for each child. Sample charts demonstrating different patterns of behavioral change, accompanied by brief descriptions of each pattern are used to introduce teachers to the charting procedure. In addition to these sample profiles, real data collected from actual classroom experiences are analyzed.

It is often desirable to record two opposite but related behaviors in the same project, for example, the number of words spelled correctly and the number of words spelled incorrectly. When two opposite components of a behavior are charted they are called an *accuracy pair*.

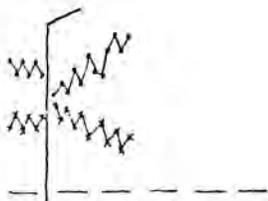
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Sample 1



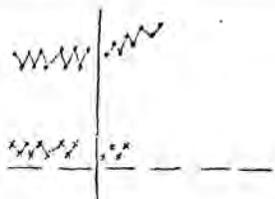
The Sample 1 pattern shows that no growth is taking place. The number of correct responses shown by the dots in the upper pattern falls within a constant range, and the number of errors shown by x's in the lower pattern is also relatively constant. This signals the need to introduce a change in the program.

Sample 2



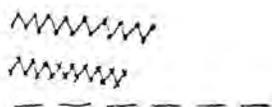
The vertical line in Sample 2 shows that a program change has been introduced. The patterns to the right of the vertical line show an increase in the frequency of the desired behavior or *acceleration target*, and a decrease in the frequency of the negative or wrong response known as the *deceleration target*.

Sample 3



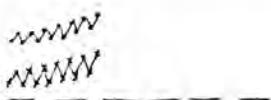
The vertical line in Sample 3 again indicates a program change. While not a dramatic change, there is growth indicated here in that the errors are not increasing but that the correct or *acceleration movement* is growing.

Sample 4



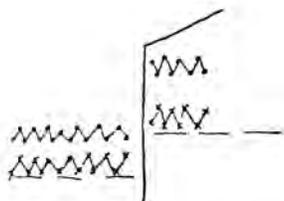
It is not enough to chart just the *acceleration target* or *deceleration target*. The pattern in Sample 4 is a "sleeper" and can fool you unless you have an *accuracy pair* going. Although errors are going down, so are the number of correct responses.*

Sample 5



Similarly, Sample 5 is also a "sleeper" and here both correct and incorrect responses are occurring more frequently.

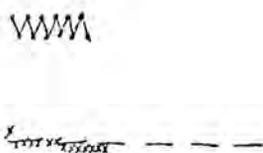
Sample 6



Sometimes a change is introduced in a program that really doesn't alter the pattern of responding. Sample 6 shows a jump in the frequency of responding but not an improvement in skills. Both patterns indicate no growth is taking place.

* The patterns in Samples 3 and 4 indicate a change should be made in the program.

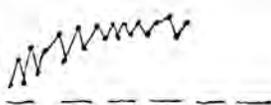
Sample 7



The dashed horizontal line across each week is called the *record floor*. It indicates the lowest possible frequency of responding for the period of observation.

$\left\{ \frac{1}{\text{time sample}} \right\}$ When a response does not occur during the period of observation, it is recorded below the record floor. Sample 7 shows a stabilized performance with no errors. This pattern may indicate that the child is practicing an acquired skill but no growth is taking place. A change should be introduced that will put some errors into the count. This pattern may also indicate that the child is ready for the next step in the learning sequence.

Sample 8



Sample 8 shows an acceleration target that is leveling off. The concept or behavior has already been learned or boredom may have set in. It is usually time for a change.

Sample 9



This pattern in Sample 9 may be found in charting either acceleration or deceleration targets. As in Sample 8, it may indicate a leveling off of behavior.

Sample 10



Sample 10 shows no growth and in many cases would indicate that the person counting is not counting frequently enough to provide data that can be worked with.

CARE ENOUGH TO CHART

The limited amount of data means that it takes an excessive amount of time to effect a change or to give the child or *behavior* the feedback he needs for effective growth. Children do not have this time to waste.

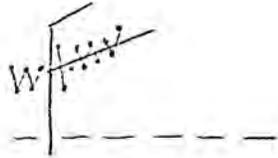
It might be valuable in this situation for the teacher to do a self project counting the number of times he/she counts and charts during a day. It would also be valuable to count the number of behaviors that are defined. Remember, it is a mistake to assume that just keeping a set of numbers without charting will give enough information for action.

Sample 11



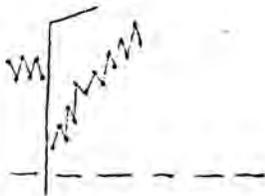
Sample 11 shows a change procedure that has had an obvious effect on the behavior causing it to bounce. It is often helpful to try to "grab" the behavior on a high or low day and put in another change to get it moving in the desired direction.

Sample 12



Sample 12 shows a general increase or jump in frequency of the desired behavior as well as a positive growth or *celeration*. *Celeration* refers to the slope of the line on the chart. It is a numerical statement expressing movements/minute/week. When a jump occurs in the frequency of responses immediately following a program change, it is referred to as a *frequency multiplier*.

Sample 13



When the frequency of responses drops, following a program change, the change is referred to as a *frequency divider*. In Sample 13 the change was valuable because the desired growth had been started.

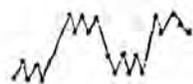
Sample 14



Samples 14 and 14a indicate calendar patterns or cycles. They can occur as shown, by the day or by the week. They could also occur by period. They are important to watch for because of the amount of information they can yield. For example:

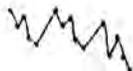
1. An event at home could be having an adverse effect on the reading program.
2. Another child's proximity may help or hinder.
3. A particular period is boring, poorly planned, or better than others.

Sample 14a



Charting the data will provide a clear picture of these cycles and allow appropriate action to be taken. Without the data one can only operate on assumptions and consume precious time searching for answers.

Sample 15



The type of pattern in Sample 15 can be a strong signal to the teacher that the child performs better on Monday, after a weekend at home, and after a week of his school program his performance is down. This should be a sign for an immediate reevaluation of the school program.

In some samples it can be seen that the deceleration or acceleration is so slow and the slope of the line so slight that without the daily behavior chart it would be difficult to catch potential trouble in its early stages. Without the data one could be left with a crisis situation without knowing why, how, or where it came from. In these situations the chart will help to increase the teacher's sensitivity and allow for planning and preparation. Other patterns will highlight particular days as trouble spots, such as low Mondays or Fridays. Particular lessons can also show up in a pattern allowing the teacher to get directly to the area in which the child needs assistance.

Five projects are included here with brief descriptions of how the charted data are used to help the teachers and the students make the appropriate decision for continued growth.

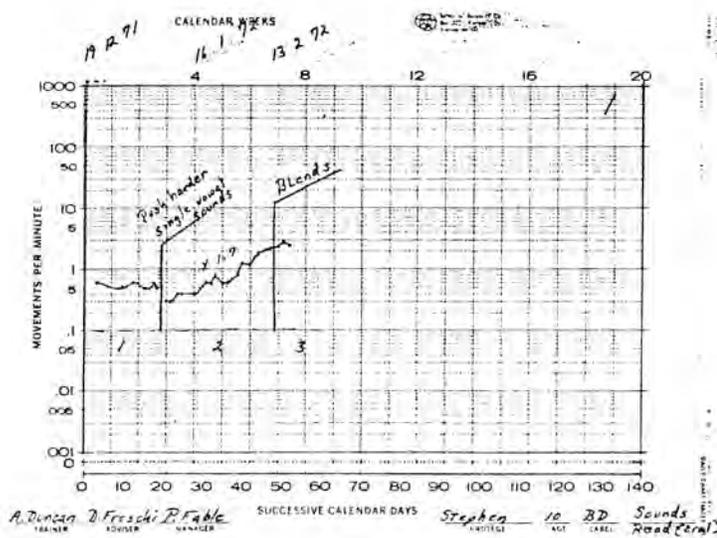


Chart 1

An example of Sample 13 is seen in Chart 1. Here the behavior or *movement* being charted is sounds read correctly in a 10 minute period. The *behavior* is a 10 year old boy diagnosed as brain injured. The project is divided into three phases indicated by the numbers below the record floor. In phase one the pattern shows that there is no growth taking place and the rate of correct answers is remaining at .5-.6 sounds read per minute. The teacher, using the pattern as a warning that growth is not occurring, instituted a change. This was a two step procedure that first, reduced the items presented to single vowel sounds only, and second, upped the pressure or pace of the lesson to keep the child from disassociating.

The initial effect of this change procedure was to reduce the rate of sounds read to a lower frequency than the starting point. This loss was a temporary one, however, and after the second day the rate began to climb at a celeration rate of $\times 1.7$. In slightly less than 4 weeks the rate had climbed well above the original starting point in phase one. During the third phase the teacher re-introduced sound blends combining both vowels and consonants. As can be seen on the chart the child was quite ready for a change and the introduction of new more difficult work caused no setback in his rate.

Chart 2 summarizes the behavior of an entire class. Phase 1 on this chart illustrates the pattern shown in Sample 4 in which both the acceleration and deceleration targets are going down simultaneously, indicating trouble within the program. After the change was introduced the chart reflects a Sample 2 pattern.

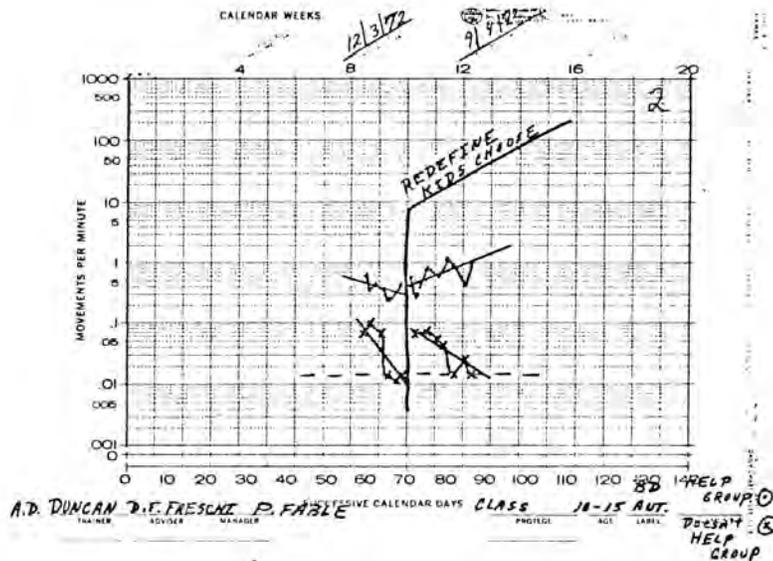


Chart 2

The class in this project was a group of children ranging in age from 10 to 15 years and diagnosed as autistic and/or brain injured. All had perceptual, motor, and social behavior difficulties. The definition of the acceleration target or *pinpoint* is "helps" which were any acts by any class member which helped the class to function better, e.g., raising hand, being polite to neighbor, assisting one another, giving chances, and so on. The deceleration pinpoint is "not helps" or any action that caused a negative disruption in the class, e.g., talk outs, screams, hits. The teacher was keeping track of both the acceptable and unacceptable actions and thus was able to quickly see that although the unacceptable behaviors were going down, the acceptable behaviors were also decelerating. The need for a change was evident in the chart and one was made. What was especially interesting and encouraging about this change was that the children were given the opportunity and the assistance to help design the change procedure.

Following a discussion of the behaviors to be worked on, the children ended up choosing the same targets originally charted. The difference seemed to lie in the fact that after the children themselves had defined the goals, they seemed far more aware of what they were working on than before. The chart showing the response to their self-determined goals started the rate of acceptable behaviors climbing. The unacceptable behavior climbed for a short time, turned around, and began to decelerate nicely. If the teacher had not been counting the accuracy pair (acceptable and unacceptable behaviors), it would have been difficult to see the overall trend. Indeed the teacher might have been misled by the deceleration in the unacceptable behavior until a major difficulty had arisen. Another good reason for counting acceptable behavior was that the teacher had something positive to look at and to encourage the children for.

Chart 3 is an example of a calendar pattern or cycle similar to Sample 15. The information gained from this chart provided the teacher with a clue that was used to affect the child's total program. The child was an 8 year old girl diagnosed as autistic. She was very hyperactive and resistant.

The movement that the teacher wished to decelerate in this project was screaming. The procedure involved the use of short (10 minute) lesson periods during the school day in combination with a consistently applied response to each screaming incident. When the screams occurred the teacher firmly told the child she was displeased and turned her back on the child refusing to work with her. The teacher gave positive verbal reinforcement during all work sessions in which the child cooperated.

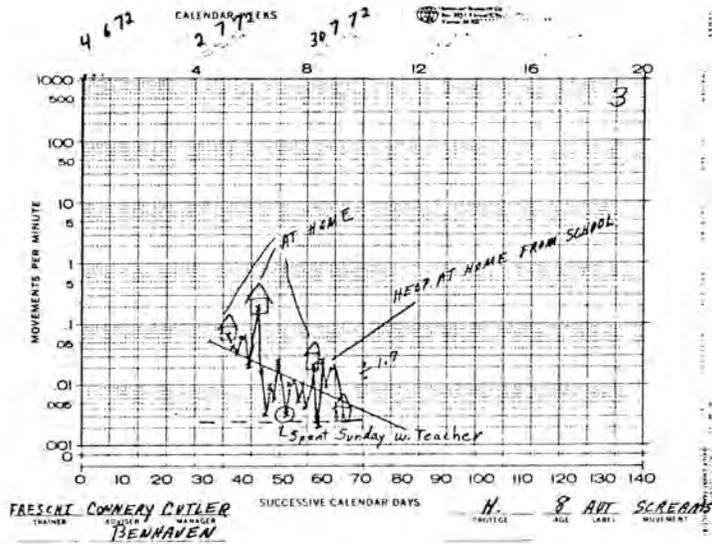


Chart 3

As the chart shows there was a rapid and distinct drop in the frequency of screams ($\div 1.7$). The calendar pattern also became apparent as the overall frequency of screams dropped. Each Monday after a weekend at home the screams would be at the highest rate of the week. (At home Mondays are indicated by the house symbol around the appropriate x.) After the first 2 weeks the teacher offered to babysit and took the child to her own home on the following Sunday. The Monday after this Sunday shows the best or lowest rate since the project started. The next week the screams were up again on Monday.

Acting on this pattern a home visit was arranged by the school's parent service coordinator. During the visit it was observed that tantrums, screaming, and generally unacceptable social behaviors were being reinforced in not only the autistic child but in the normal siblings as well. In addition the autistic child had little protection from the highly aggressive play of her siblings. The parent service coordinator and the teacher designed a program to help the mother deal with some of the home problems. While it is difficult to judge the total success of the home program after such a short period of time, the factual data supplied on the chart show a sharp overall reduction in screaming during the school day. The information and the teacher's alertness to the pattern also allowed the teacher, school, parent service coordinator, and parent to act in an integrated effort for the benefit of the child.

The fourth and fifth charts deal with academic goals and provide good examples of teachers using the steady flow of information from their projects to help them maintain the growth of their students and successfully deal with problems as they occur. Both charts illustrate more than one of the sample patterns.

Chart 4 summarizes the counting behavior of a 12 year old boy with multiple learning disabilities. The task required the child to indicate correctly the number of objects placed before him. The acceleration target was the number of times he counted correctly, while the deceleration target was the number of errors made.

During phase one growth was slow but steady with errors decelerating ($\div 1.3$) and correct responses accelerating ($\times 1.1$). Phase two showed a dramatic reversal of progress when a new teaching aide was introduced into the lesson. The teacher quickly acted to eliminate this difficulty and started phase three. In this phase there was an example of a child practicing a skill that he already had or that was too easy for him. There are no errors and the rate of corrects remains stable ($\times 1.0$). This can lead to boredom and always warrants a close look. Lack of errors not only indicates that all responses are correct but can also

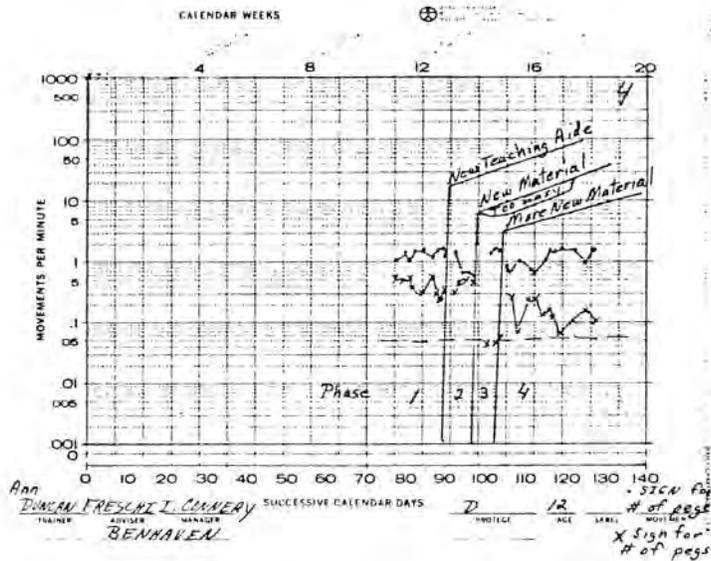


Chart 4

show a lack of opportunities to learn. (With some children our teachers have found it helpful to refer to corrects and incorrects as "first tries" and "chances to learn" respectively.) Again, responding to the data the teacher started phase four introducing more new material at a higher level of difficulty. Errors re-appeared and started to decelerate ($\div 1.2$) as the child learned the new material and the correct answers began to accelerate ($\times 1.2$). The fourth phase of this project left a picture of a child learning and growing.

The fifth and final chart shows a similar picture.

The movement being charted was addition facts. The child in this case was diagnosed as autistic and deaf. During all three phases the rate of correct responses was rising steadily ($\times 1.3$, $\times 1.4$, $\times 1.2$). However, only during the third phase had the teacher hit upon a change procedure that also caused the rate of errors to decelerate. The first change for phase two involved two steps. New material was added at a simpler level and the amount of positive verbal and gestural reinforcement was increased. The results showed an increase in both correct and incorrect rates. The need for another change was evident and phase three began. During this phase the positive reinforcement was maintained and the child was given a drill warmup before the regular numbers lesson. The rate of corrects again accelerated and the errors bounced and rapidly decelerated to zero ($\div 1.8$) as the child achieved the goal of addition facts to 20.

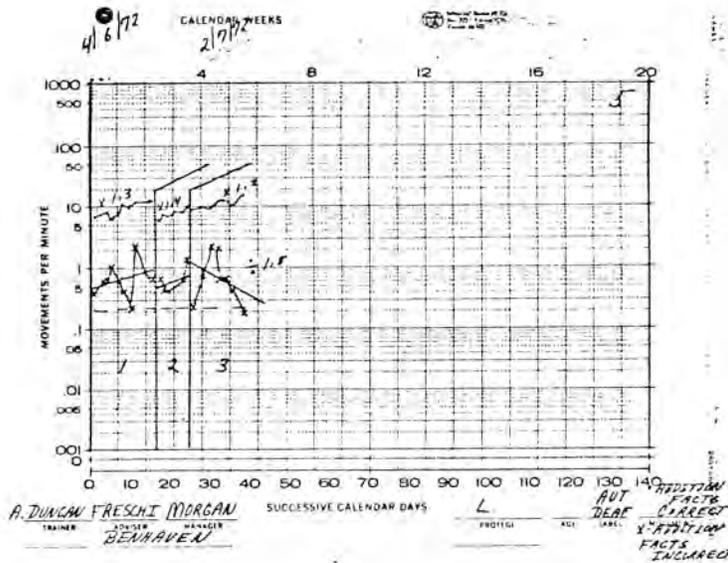


Chart 5

FINAL WORD ABOUT THE PATTERNS

The patterns presented here were used to help children in real classroom settings. The cost was generally little more than effort and a willingness to look at the data. The results have been children learning and growing. As stated above, the patterns shown did not exhaust all the possibilities nor did they present all the answers. They serve as a starting point for turning good teaching into better teaching, more accountable teaching, and more productive teaching for the children involved.

■ Confused about basic charting techniques? A simple, but concise explanation of charting can be found in *TEACHING Exceptional Children*, Spring, 1971.

