

## The Inner Eye: Improving Self-Esteem

Abigail B. Calkin

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Wilhelm Wundt is credited with the start of psychology around 1860. About fifty years later, the mainstream of American psychology abandoned the then-current introspective approach for the behaviorism of Watson, then Skinner (Jacob and Sachs, 1971). But when psychology was approximately a century old, Homme (1965) published the first article by a behaviorist on inner behavior. By 1971, when Jacob and Sachs published *The Psychology of Private Events*, the study of what has been called private, covert, inner events was sufficiently established that the authors were not proving anything, but reporting the most recent research on inner behavior. Indeed, Jacob and Sachs state "...it is unscientific to deny, *a priori*, that covert responses are by their nature unable to be studied, or do not behave in lawful ways" (p.2). They continued, "Thoughts and feelings may be shaped, reinforced, or extinguished (p.3)." Some elements that make such examination possible today include the development and widespread use of factor analysis, computers (Jacob and Sachs, 1971), and the Standard Celeration Chart.

Ogden Lindsley founded and, in a team effort with graduate students and teachers, developed the Standard Celeration Chart in 1964 and 1965. A.D. Duncan (personal communication, March 28, 1992) did the first inner project using the Standard Celeration Chart in 1965, presenting the data at the American Psychological Association Convention in 1968. Haughton and Kunzelmann (E.C. Haughton, personal communication, February 10, 1981) independently and simultaneously began to use the one minute timing with student learning in 1967. Duncan (1971) published the first article using Precision Teaching to manage inner and outer behaviors. Student nurses in the Mt. Hood (Oregon) Community College nursing program counted and charted positive and negative feelings in different practicum settings to help them formulate which area of nursing they wished to pursue (Dean, 1973). Abigail Calkin (1980) compared first grader, teenager and adult perceptions of facts

learned, fun had, and freedom felt, finding inner behavior occurred within two cycles, was able to be validly and reliably counted, and celeration, bounce, and correlation were functionally and statistically independent.

In 1977, Calkin (1981) used, for the first time, the one minute timing with inners, counting four pinpoints--positive and negative thoughts and feelings. In 1981, Conser counted positive and negative thoughts and feelings, monitoring the effect that events in her life had on her thoughts and feelings. McCrudden (1990) counted positive and negative feelings all day for 15 weeks. Cooper (1991) used the one minute timing when counting destructive and loving thoughts and feelings. Lindsley (1990) stated "The spring 1971 *Teaching Exceptional Children* Precision Teaching issue had two (13%) of its 15 articles on inner behaviors. The spring 1990 *Teaching Exceptional Children* [sic] Precision Teaching issue had none" (p.12). In the same article, "Our aims, discoveries, failures, and problem," Lindsley cited Duncan's and Calkin's work with inners, and stated, "Worked but has lost ground" (p.12).

From 1977 to 1990, I collected 45 projects from people who had counted inner behavior, specifically, positive and negative thoughts, pleasant and unpleasant feelings. Thirty-five of the people used a one minute timing as the intervention. This article reports the results of the thirty-five people who used the one minute timing to shape positive thoughts and pleasant feelings about oneself, and in some cases, to extinguish the negative thoughts and unpleasant feelings.

### Methods

Each person was asked to count all day positive/negative thoughts and/or pleasant/unpleasant feelings about him/herself. The individual chose and further defined the pinpoint. He/She defined

the inners as: positive/negative (self-) thoughts; positive/negative (self-) feelings; feelings about marriage; contented/depressed feelings; self-confidence/ frustration about job; pleasant/unpleasant (self-) feelings; pleasant/unpleasant (self-) thoughts; and positive/negative attitude. Some examples of positives/pleasants included smart, good, professional, doing well in relationship, finishing assignments, friendly, hard working, supportive, energetic, good parent, good son, perceptive, physically fit, patient, well-dressed, honest. Negatives/unpleasants included not up to personal standard, inadequate, dependent, don't work hard enough, correct children too often, bad mother, indecisive, worry too much, existential emptiness.

Three of the people were teenagers--one young woman and two young men. Of the remaining 32, 21 were women, 11 men. Twenty-six people did the project as a part of a class; nine were not doing the project for class credit.

The methods of counting varied. Some used a bead counter; some a golf counter. Others tallied, or wrote each specific inner on paper. Each time a person had an inner, s/he recorded it. At the end of the daily counting period, each person entered the data on the Standard Celeration Chart. For those using the Chart for the first time, the data from the Before Phase was recorded, then used to teach charting and was charted at one time.

After the Before Phase, approximately 10 days of counting, the person began to do the one minute timing once per day. During the one minute timing, the person recorded as many good, positive, pleasant things about him/herself as possible. If an item were repeated, although not in sequence, that was judged all right. The purpose of the timing was to think freely as many good attributes about oneself as possible. I told the people to use not only those items they believed or thought about themselves, but also to use any that others had told them, even if they did not believe them at that time. Thirty-four used a think/write initially; one used think/count. In During 2, one person used two daily one minute timings and two people used think/say.

Statistical analyses included frequency distributions, frequency changes, frequency and celeration variability, celeration changes, and correla-

tions of the positive/pleasant with the negative/unpleasant, and of each of those to the one minute timing. The phases used for the analyses were the Before and the first During because each project had both of those phases. Ten projects had more than one During; seven had an After Phase. Variability analyses used all phases.

## Two Projects

Diane began her project by counting for 30 minutes a day to help her define the positive and negative inner behaviors about herself. Once she perceived she understood what she wanted to count, she began to count positives and negatives about herself all day. Chart 1 shows that Diane's all day positives and negatives were close in frequency during the Before Phase. In During 1, they separated with the positives stepping up, the negatives decelerating slightly, and both positives and negatives narrowing in total range. In During 2, she set aims, reached the goal for the positives, but did not reach the goal for the negatives. Based on that, in During 3, she decided to focus on specific positives, ones that were the opposite of the negatives she kept having. In During 3, she maintained or exceeded her positive aim over two-thirds of the time and reached her aim for the negatives. The After Phase showed that the behavior maintained approximately a month later.

In Barbara's Before Phase (Chart 2), her positive thoughts and feelings were decelerating and her negatives maintaining. In the first During, they both accelerated. When she switched from a think/write to a think/say during the one minute timing, her positives accelerated, although they did not reach her goal, and her negatives decelerated to below her goal.

## Results

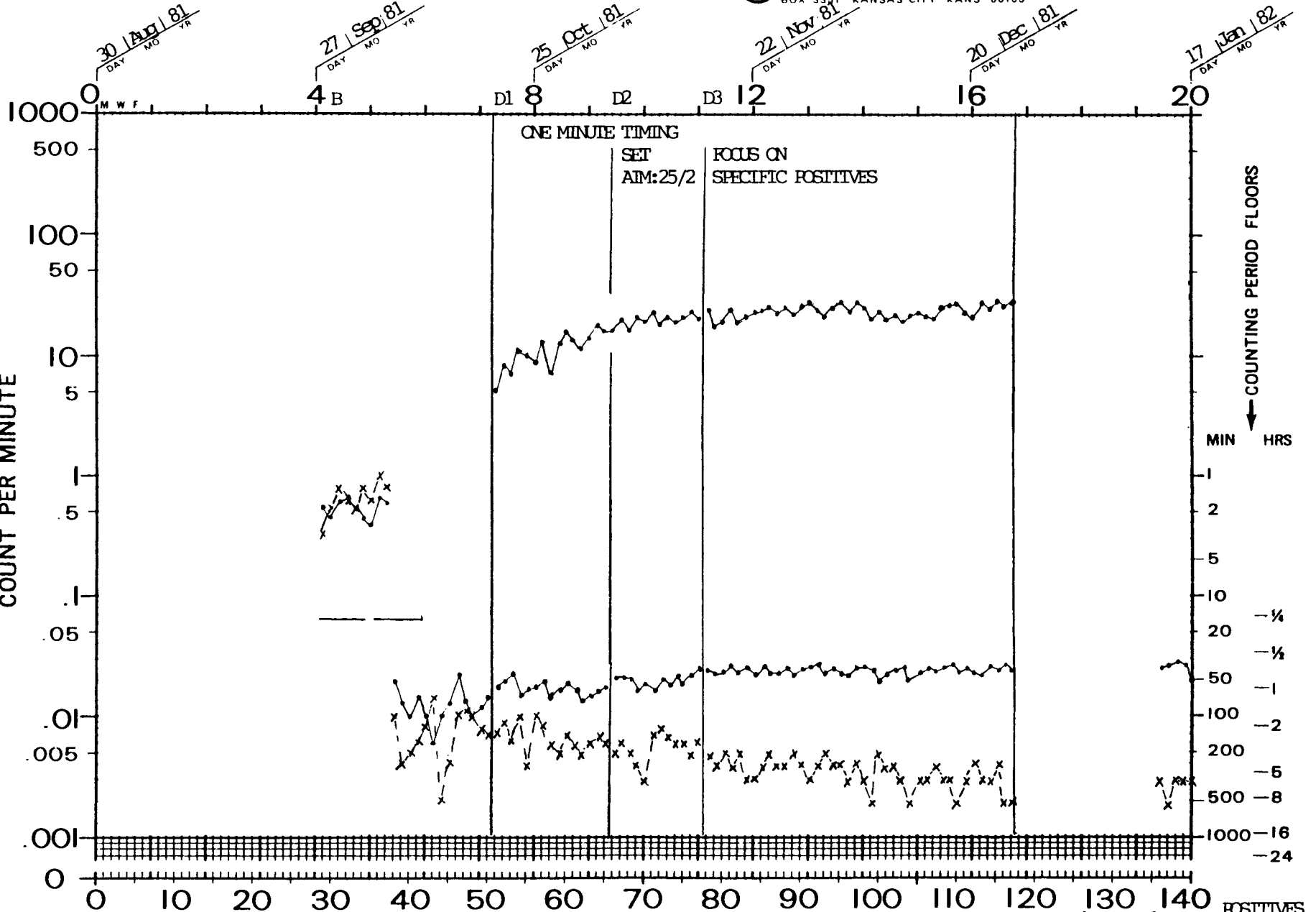
### *Validity*

The validity of these inner data is well-established by the validity of the Chart. We know the Chart is valid because of the consistency of data from the tens of thousands of different charted projects we have, including at least two hundred inner projects. The frequency envelopes of inners tend to be broader than those of the outer behaviors of regular education students'

CHART #1

CALENDAR WEEKS

DAILY BEHAVIOR CHART (DCM-9EN)  
 6 CYCLE - 140 DAYS (20 WKS)  
 BEHAVIOR RESEARCH CO  
 BOX 3351 KANSAS CITY KANS 66103



A.B. Calkin	A.B. Calkin	Diane
SUPERVISOR	ADVISER	MANAGER
DEPOSITOR		
AGENCY		

SUCCESSIVE CALENDAR DAYS	
Diane	Diane
TIMER	
COUNTER	

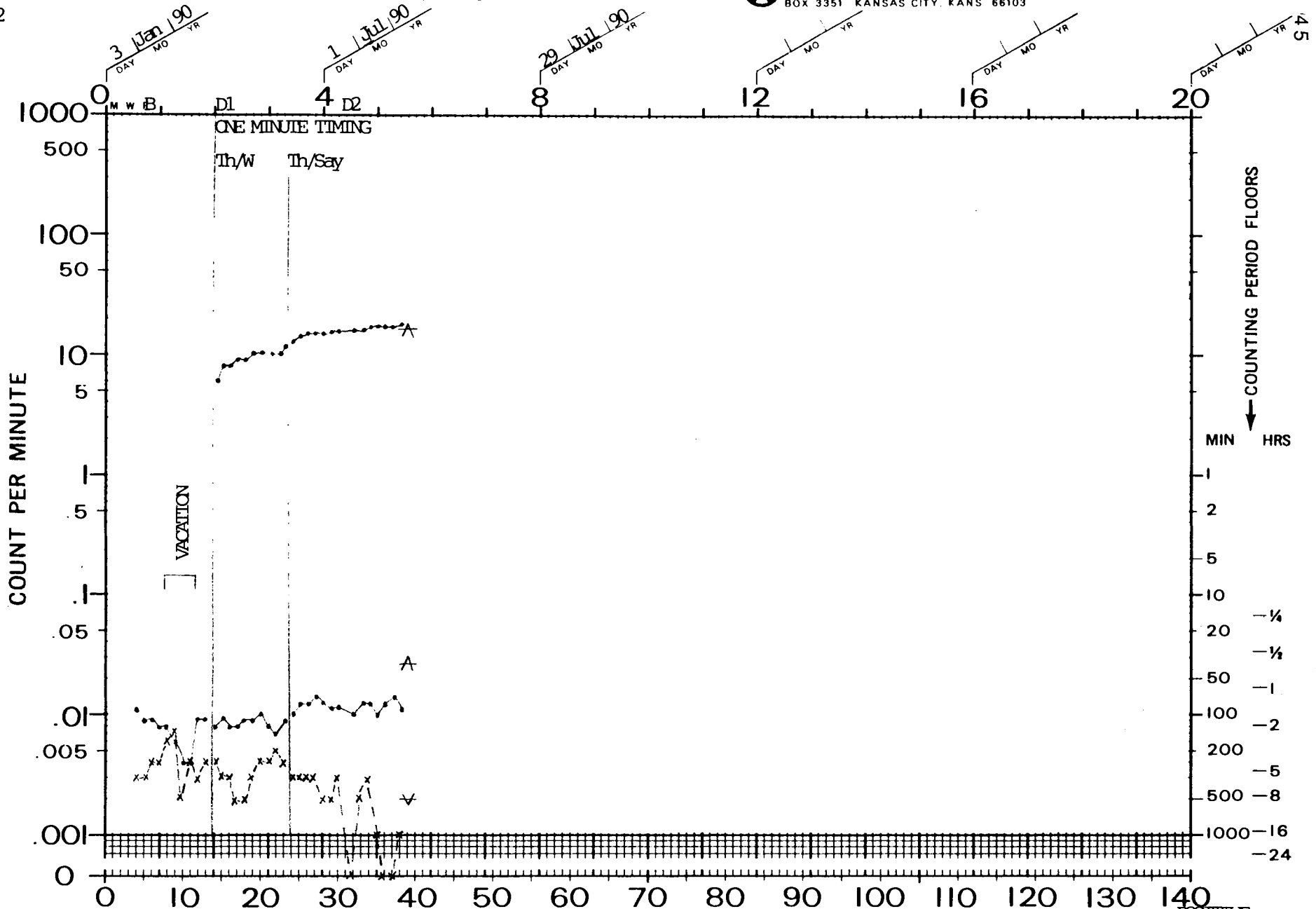
Diane	20's		
BEHAVIOR	AGE	LABEL	COUNTED
Diane			
CHARTER			

Chart #2

CALENDAR WEEKS



DAILY BEHAVIOR CHART (DCM-9EN)  
 6 CYCLE - 140 DAYS (20 WKS)  
 BEHAVIOR RESEARCH CO  
 BOX 3351 KANSAS CITY, KANS 66103



A.B. Calkin  
 SUPERVISOR

A.B. Calkin  
 ADVISER

MANAGER

SUCCESSIVE CALENDAR DAYS

Barbara  
 BEHAVIOR

30's  
 AGE

THOUGHTS/FEELINGS  
 COUNTED

Barbara

Barbara

Barbara

academic projects. Their bounce within those envelopes, however, is still consistent. Further, self-charting has more validity than charting by a second person (Lindsley, 1991). In these thirty-five projects, of course, each person counted and charted his/her own data.

## Frequency Changes

### *Frequency Distributions*

The all day behavior counts had a frequency range from 0 to 82, the bottom two cycles of the Chart. A semi-interquartile range was computed for each project. The smallest frequency range was from 10 to 13, or  $\times 1.3$ . The smallest semi-interquartile range was  $\times 1.0$ . The greatest frequency range was from 1 to 48, or  $\times 48.0$ . The greatest semi-interquartile range was  $\times 15.0$ . The frequency steps of the middle of the semi-interquartile ranges of the positive/pleasant projects from the Before to During 1 were from  $\div 1.2$  to  $\times 7.8$ , with a middle of  $\times 1.6$ . The frequency steps of the middle of the semi-interquartile ranges of the negatives/unpleasants from the Before to During 1 were from  $\times 1.6$  to  $\div 11$ , with a middle of  $\div 1.3$ .

### *Frequency Step Change*

The three methods for looking at frequency step changes were: 1) the step from the last day of the Before to the first day of During 1; 2) the first day of the Before to the last day of During 1; and 3) the middle of the first three days of the Before to the middle of the last three days of During 1.

This frequency step change is the frequency value from the last day of the Before Phase to the first day of the During Phase. The range of the all day positives/pleasants was from  $\times 2.5$  to  $\div 1.2$  with a middle step-up of  $\times 1.4$ . The range of the all-day negatives/unpleasants was from  $\times 7.0$  to  $\div 2.0$ , with a middle step-down of  $\div 1.2$ .

The frequency step change from the first day of Before to the last day of During 1 for the positives had a range of  $\times 16.0$  to  $\div 1.7$  with a middle of  $\times 2.2$ . The frequency step change range for the negatives was  $\times 5.0$  to  $\div 20.0$  with a middle of  $\div 2.0$ .

In order to avoid the influence of an aberrant frequency, a frequency outside the envelope, it is

perhaps better to use the three frequencies, rather than just one when comparing the beginning and ending frequencies. The range of the positives/pleasants before viewed this way was  $\times 7.5$  to  $\times 1.0$  with a middle of  $\times 2.1$ . Of the negatives/unpleasants, the range was  $\times 4.0$  to  $\div 5.6$  with a middle of  $\div 1.5$ .

## Variability

To look at the variability, or bounce, of the data, I analyzed the frequency relationships of all data points in all phases and the celeration relationships of all phases. This included the Before and During 1 as well as the During 2, During 3, and After Phases. Did the data co-bounce (change in the same direction), counter-bounce (change in the opposite direction), or bounce independently (one maintain while the other went up or down)?

### *Frequency Variability*

I used 3,486 frequency relationships to compare the positive/pleasant to the negative/unpleasant, the positive/pleasant to the one minute, and the negative/unpleasant to the one minute. Table 1 shows the frequency variability.

**Table 1**  
**Frequency Variability**

Number	1343	1118	1025
Percent	38.5%	32%	29.5%

## Celeration Variability

I used 91 pairs of all-day celeration lines and 49 pairs of all day and one minute celeration lines to analyze the celeration variability. If celeration lines moved in the same direction, they co-celerated; if they moved in opposite directions, they counter-celerated; if one was  $\times 1.0$ , the variability was independent. Table 2 shows the results of the positive/negative, pleasant/unpleasant all day celeration lines.

**Table 2**  
**Celeration Variability: All Day**

	<u>Co</u>	<u>Counter</u>	<u>Independent</u>
<b>Number</b>	30	23	39
<b>Percent</b>	33%	25%	42%

Table 3 compares the celerations of the all day frequencies with the one minute timings. Almost three-fourths of the all day positive/pleasant celerations and the one minute timings co-celerate.

**Table 3**  
**Celeration Variability: All Day and One Minute Timing**

	<u>Co</u>	<u>Counter</u>	<u>Independent</u>
<b>Positive/pleasant &amp; one minute:</b>			
<b>Number</b>	35	3	11
<b>Percent</b>	71%	6%	23%
<b>Negative/unpleasant &amp; one minute:</b>			
<b>Number</b>	11	19	19
<b>Percent</b>	22%	39%	39%

The celeration variability, Calkin (1980) found when looking at facts, funs, and frees was Co: 43%; Counter 17%; and Independent, 40%.

### *Variability Measures*

Variability measures indicate that inner behavior co-bounces one-third to two-fifths of the time; counter-bounces one-fifth to one-third of the time; and is independent, one-third to two fifths of the time. O.R. Lindsley (personal communication, May 4, 1992) suggested we could consider independent bounce a sub-category of counter-bounce because the behaviors are not bouncing in the same direction. The data viewed this way shows that inner behavior co-bounces 33% to 43% of the time and counter-bounces 57% to 67% of the time.

When using a one minute timing, the co-bounce of the celeration of the one minute timing and the

all day positive/pleasants increases dramatically, to almost three-fourths of the time. Again, if I follow Og's suggestion to look at independent bounce as a sub-category of counter-bounce, the one minute timing and the all day negatives/unpleasants counter-celerate 78% of the time.

### *Celeration Changes*

I looked at the ranges and middles of three kinds of celeration changes: 1) celeration collections; 2) celeration multipliers; and 3) celeration steps.

### *Celeration Collections*

Chart 3 is the celeration collection for the all day and the one minute positives/pleasants. The range of celeration multipliers for the all day celerations in the Before was x3.4 to ÷3.5 with a middle celeration of x1.2. The range of celeration multipliers in During 1 was x2.3 to ÷1.4. Again, the median was x1.2. Figure 3 also shows that the range of the celeration multipliers in the one minute timing for During 1 was x2.5 to ÷1.2, and the middle celeration multiplier was x1.2.

Chart 4 shows that the range of celeration multipliers for the negatives/unpleasants was from x3.7 to ÷15.0. The middle celeration was x1.0 in the Before and x1.0 in During 1 with a ÷2.0 step-down from the Before to During 1. The range of celeration multipliers in During 1 was x3.5 to ÷3.0. (The celeration maintained at x1.0 in Durings 2 and 3 and the After Phase.)

### *Celeration Multipliers*

The celeration multiplier for the positives/pleasants ranged from x3.0 to ÷3.0 with a middle of x1.0. The range of the celeration multiplier for the negatives/unpleasants was x39.0 to ÷11.0; the middle celeration multiplier for each was x1.0.

### *Celeration Steps*

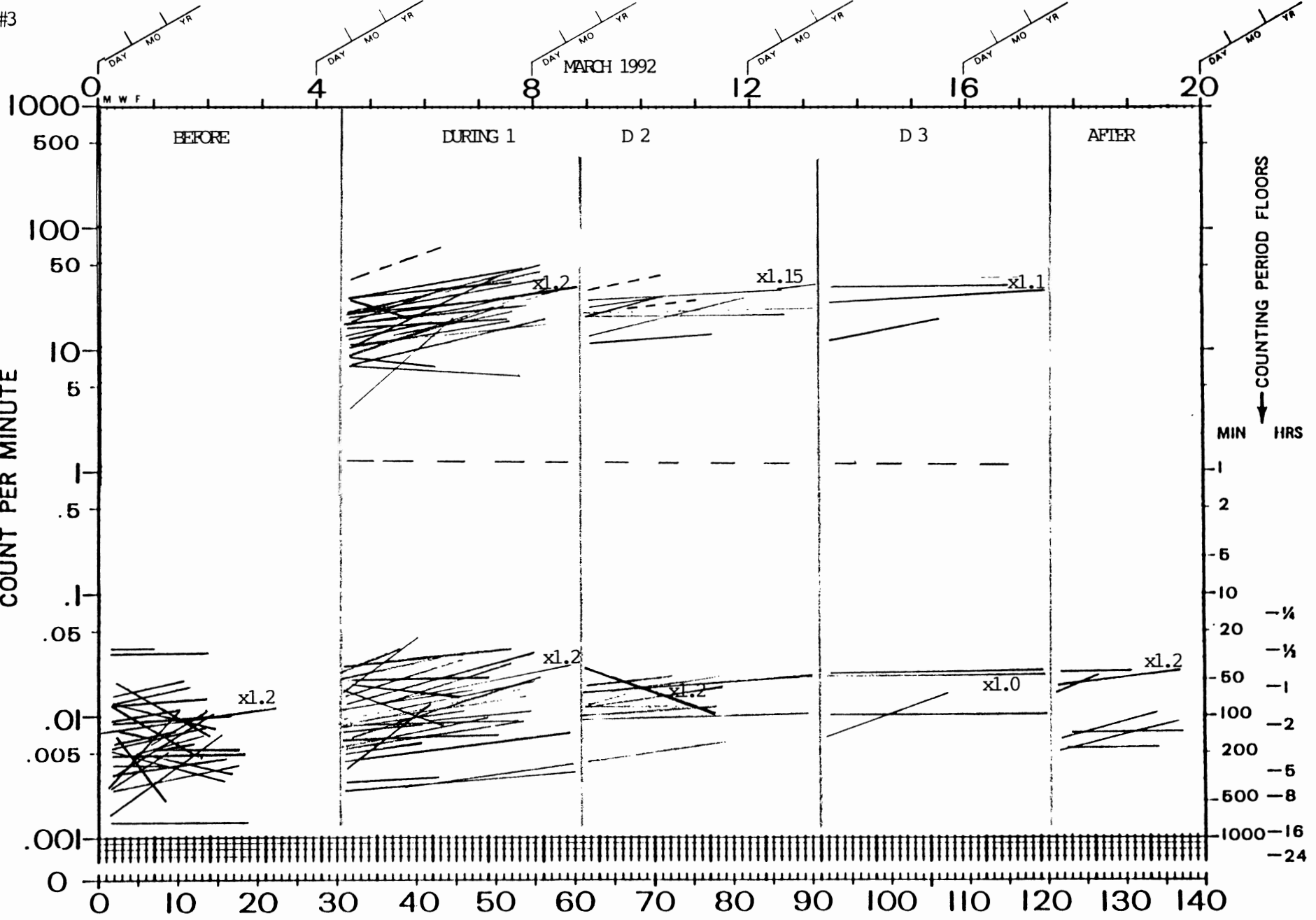
The celeration step for the positives/pleasants from the Before to During 1 had a range of x3.5 to ÷3.0 with a middle of x1.0. The celeration step change for the negatives/unpleasants was x2.2 to ÷7.5, again with a middle of x1.0.

CHART #3

# CALENDAR WEEKS



DAILY BEHAVIOR CHART (DCM-9EN)  
6 CYCLE - 140 DAYS (20 WKS)  
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BOX 3351 KANSAS CITY KANS 66103



A. B. Calkin  
SUPERVISOR

ADVISER

MANAGER

SUCCESSIVE CALENDAR DAYS

CELEBRATION COLLECTION  
35 PROJECTS

BEHAVIOR

AGE

LABEL

POSITIVE/PLEASANT

COUNTED

THINK/WRITE

THINK/SAY

DEPOSITOR

AGENCY

TIMER

COUNTER

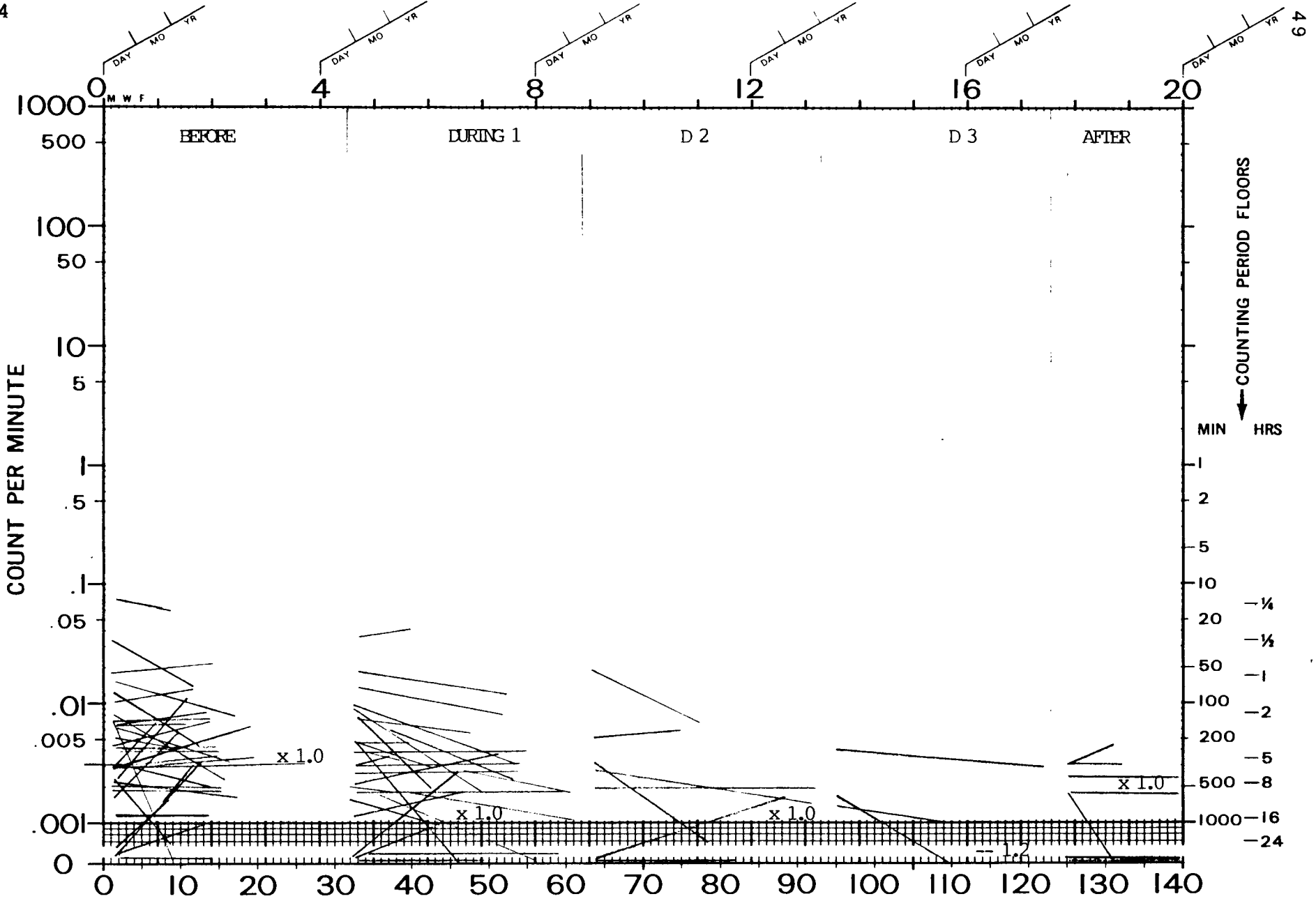
CHARTER

CHART #4

### CALENDAR WEEKS



DAILY BEHAVIOR CHART (DCM-9EN)  
6 CYCLE - 140 DAYS (20 WKS)  
BEHAVIOR RESEARCH CO  
BOX 3351 KANSAS CITY KANS 66103



A. B. Calkin

SUPERVISOR

ADVISER

MANAGER

### SUCCESSIVE CALENDAR DAYS

CELEBRATION COLLECTION

25 SUBJECTS

BEHAVIOR

AGE

LABEL

POSITIVE/PLEASANT

COUNTED



All other middle celeration values, no matter what the range or the statistic, was  $\times 1.0$ . The steepest middle celeration,  $\times 1.2$ , does not meet the Precision Teaching minimum acceptable celeration standard of  $\times 1.25$ , or  $\div 1.25$ . Thus, in these 35 projects, celeration does not identify change in behavior.

### Correlation Coefficients

The number of phases for the correlation coefficients was 37 because two people counted thoughts and feelings separately. The correlations show the relationship between the positives and negatives, the positives and the one minute timing, and the negatives and the one minute timing. Table 4 gives the distribution, the middle correlation coefficient, significance levels, and the shared variability.

The middle correlation coefficients show that the positives/pleasants and negatives/unpleasants correlated somewhat,  $+46$ , prior to the use of the one minute timing. There was no correlation ( $+0.06$ ) between them when the one minute timing was used. There was also no correlation ( $-0.07$ ) between the negatives/unpleasants and the one minute timing. The middle coefficient for the positives/pleasants and the one minute timing was  $+0.52$  and this particular coefficient was significant at the  $.005$  level.

Almost every phase had a different number of frequencies, so it was most important to look at the critical values of  $r$ , to compare the correlations across people and phases. Looking at the

levels of significance of the correlations between the positives/pleasants and the negatives/unpleasants in During 1, 9 of the 12 (out of the 37 total) had relationships significant at the  $-.44$  level or greater. The correlation of the positives/pleasants in During 1 and the one minute timing was the greatest. Eighteen of the 37 coefficients were significant, 16 of those at the  $.005$  level. This indicates a relationship between the one minute timing and the number of positives/pleasants a person had each day.

The shared variability percentages indicate that almost a third of the variability between the one minute timing and the positives is shared. To visualize this, the reader can picture a Venn diagram in which approximately one third of the two circles overlap. This is another indication that there is a relationship between the frequency of the one minute timing and the all day count of positive thoughts/pleasant feelings.

### Summary

The greatest changes in these projects were related to frequency, not celeration. Middle frequency step changes for the positives/pleasants and for the negatives/unpleasants showed that the one minute timing produced changes in the inner behavior. These projects also showed the inner frequencies were in the bottom two cycles of the Chart.

Table 4  
Correlation Coefficients

	B +/-	D1 +/-	D1 +/1'	D2 -/1'
Distribution	-.73 to +.82	-.70 to +.43	-.39 to +.97	-.85 to +.50
Middle	+.46	-.06	+.52	-.07
Significant r				
.025	2	4	2	2
.005	3	8	16	5
Shared Variability	16%	14%	29%	12%

Variability was consistent with the other data--facts, funs, and frees (Calkin, 1980)--indicating that inner behavior co- and independently bounces more than it counter-bounces. The shared variability between the one minute timing and the all day positive/pleasant frequencies was high. Middle celeration changes for the positives/pleasants and for the negatives/unpleasants were not sufficiently steep to consider that celeration was an important factor. Celeration variability is the exception to this: the all day and one minute positives/pleasants had a significantly high co-variability; the one minute negatives/unpleasants had significantly high counter-variability.

Correlation coefficients showed significant relationship and good shared variability between the all day positives/pleasants and the one minute timing. When all the frequency measures--frequency, variability, and correlations--are viewed together, the evidence is even stronger to support that the one minute timing can change all day frequencies of positive and pleasant thoughts and feelings about oneself.

### Conclusions

1. Clearly, inner behavior can be validly and reliably counted and charted.
2. Frequency of thoughts and feelings per day in 45 projects is consistently at 0 to 82. Demographic factors are irrelevant.
3. The one minute timing has a much greater effect on the frequency of inners than on the celeration of them.
4. The variability of frequency and celeration, whether viewed as co-, counter-, independent, or just co- and counter-, shows that inner behavior contradicts the see-saw theory. This means that the behaviors are independent of one another, i.e., an increase in pleasants does not indicate a decrease in unpleasants; or, to state it another way, as one behavior goes up, the other will not, by necessity or definition, go down. Further, the one minute timing shows high co-celeration with the all day positives/pleasants and high counter-celeration (combining the

counter-and independent) with the all day negative/unpleasants.

5. Correlations of pleasant and unpleasant inners and the one minute timing show that the timing is most effective in increasing all-day pleasant thoughts/feelings.
6. Behavior changes are attainable when using a one minute timing with inners. It works. Why aren't we using it more? Why aren't more people charting inners?

### Future Needs

1. We need to chart more inner behavior using not only thoughts and feelings about self, but also a variety of pinpoints, individuals, and age groups.
2. To get more improvement, the projects may need closer supervision and more individualization.
3. We need to investigate the use of other interventions: rewards, think/say instead of think/write, etc.
4. Total project length should probably be at least five weeks.
5. Does the growth in frequency, not celeration, occur only with inner behavior, or is it a function of project supervision or some other variable? Does it also occur with other inner behavior? Does it occur with some outer behaviors?
6. We need frequency, celeration, variability, correlation analyses of outer behavior to compare inner and outer behaviors.
7. An analysis of the relationships of frequency, variability, celerations, and correlations within each project might show some relationships that we may not be presently seeing.
8. We should probably use step changes in celeration and frequency more commonly than we do when we analyze our Charts, no matter what the pinpoint.

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