

## Reducing Negative Inner Behavior of Senior Citizens: The One-Minute Counting Procedure

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This study assessed the effects of a one-minute counting procedure on reducing negative inner behaviors of two female senior citizens, aged 88 and 83. Both participants showed a relationship between the one-minute counting procedure and a jump-down in frequency of negative inner behavior, and they believed our procedures were easy to use and time efficient.

The number of people aged 65 years or older in the United States is projected to reach nearly 22 percent of the population by the year 2030 (U. S. Bureau of the Census, 1989). Personal and societal concerns will likely accompany the growing number of senior citizens, and basic issues such as health care, housing, finances, and independence could occasion accelerated personal negative thoughts and feelings (Burns & Kamerow, 1988; Doolin, 1986; Holden, Burkhauser, & Meyers, 1986; Keigher & Greenblatt, 1992; National Center for Health Statistics, 1989). Many of these issues need political and medical intervention, but instruction may help some troublesome areas.

The gerontological literature (e.g., Stacey & Gatz, 1991) devotes considerable attention to psychological well-being, often viewed as a balance between negative and positive affect. Since Bradburn (1969) formulated the idea of balancing negative and positive affect, many research projects measured, described, and compared this state of well-being (Diener & Emmons, 1984; Lawton, 1984; Lawton, Kleban, Dean, Rajagopal, & Parmelee, 1992; Watson, Clark, & Tellegen, 1988).

Several researchers described negative and positive thoughts and feelings as inner behavior, sometimes called private or covert events (Moore, 1980), and used self-recording and

positive practice to balance negative and positive affect (e.g., Calkin, 1981, 1992; Cooper, 1991; Conser, 1981; Duncan, 1971; McCrudden, 1990). During a typical one-minute counting session, an individual thinks of as many positive personal thoughts and feelings as possible (Calkin, 1981); examples would be: "I am intelligent," or "I am attractive," and so forth. With practice, most people will think and self-record 30 to 50 positive thoughts and feelings per minute, often resulting in an overall daily reduction in negative inner behaviors. Elementary students, college students, and middle-aged adults have used this terse self-management procedure successfully (Calkin, 1992; Conser, 1981; Cooper, 1991; Duncan, 1971; McCrudden, 1990).

We found no studies using the self-management procedure of self-recording and positive practice with persons who are elderly. Our study is a systematic replication of Calkin's (1981) self-management method, with elderly persons serving as participants. These participants self-recorded positive thoughts and feelings daily during a one-minute counting period. Our goal was to improve the balance between positive and negative thoughts and feelings of elderly persons reporting troublesome inner behavior, and to provide another data source for establishing the generality of Calkin's 1981 procedure.

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## Method

### *Participants*

The participants in this study were 2 female senior citizens, aged 88 and 83. We selected these participants because they reported troublesome negative thoughts and feelings such as loneliness, depression, sadness. Also, they were free of mind-altering diseases (e.g., Parkinson's, Alzheimer's), possessed hand dexterity sufficient to operate a wrist counter and use a pencil to mark a sheet of paper, and had sufficient visual acuity to discern lines on the Standard Celeration Chart (Pennypacker, Koenig, & Lindsley, 1972).

### *Setting*

We held the initial meeting, instruction, and subsequent follow-up meetings in a large conference hall that accommodates 75 people, located on the second floor of the senior citizens' apartment building. There were four, 6 ft x 4 ft tables, and approximately 35 chairs in the area. This setting was convenient because of the central location. The actual research setting for the occurrence of inner behaviors was anywhere that the participants were when they recorded the occurrences of inner behaviors.

### *Definition of the Target Behavior*

The target behaviors of this study were negative feelings or thoughts. We defined a negative feeling as an individually perceived emotional state of a dissonant or otherwise uncomfortable emotional tone. To respect the individuality of each participant, these, and any other feelings or thoughts that the participant discerned as negative, were included. Some examples of possible negative feelings included sadness, gloom, despair, and helplessness. A negative thought was an idea or similar consideration that was self-observed as negative (e.g., "I don't think anyone cares for me; I hate when that happens"). Again, specific to the individual, a thought that was negative to one person may not have been negative to another. The negative thought response class varied among, and was particular to, each participant.

### *Measurement*

The participants attached a wrist counter (i.e., a golf score counter) with a watch band to their wrist and made a tally of each perceived negative feeling or thought by pushing the counter button, producing a cumulative number on the face of the wrist counter. The tally denoted perceived events. At the end of the counting period, the participants recorded the cumulative total number of perceived negative thoughts and feelings on a piece of paper. At the end of the week, Rick, the first author, went to the home of the participants, collected their cumulative totals, and displayed those data on Standard Celeration Charts.

### *Procedures*

Before. The Before Phase consisted of either 8 days of observation, or as many additional days as needed to establish steady frequency of responding. We defined steady state responding as a weekly celeration that is  $\times 1.1$  or  $\div 1.1$  (i.e., multiplies or divides by 1.1). The target behaviors were defined for the participants as negative thoughts and feelings (as explained above) that occurred during each 24-hour counting period. Further, we presented the participants with examples of occurrences and non-occurrences of negative thoughts and feelings, and explained that when they perceived a feeling or thought that had a negative, or dissonant feeling or tone, it was an occurrence of the target behavior. A non-occurrence was a feeling or thought that was positive, pleasant, or otherwise connoted as a happy feeling or thought. Next, we instructed the participants to push the button on their counters when they perceived a negative thought or feeling, or when they perceived that a negative thought or feeling had occurred. The next morning they recorded the cumulative wrist counter total on a data sheet when they awoke, and reset the counter to start a new counting period.

During the one-minute counting period. We introduced the participants to the one-minute counting period for positive thoughts and feelings following steady state responding in the before phase. The one-minute counting period occurred daily and accompanied the procedures used in the Before Phase. During one-minute counting periods, the participants quickly

thought and tallied as many positive thoughts and feelings as they could in one minute.

Participants used the think/mark learning channel to tally the thoughts and feelings. The think/mark channel describes the sense modalities participants used. With the think/mark channel, they "think" of positive events or occurrences, and "mark" the thoughts by making one tally on a tablet, or piece of paper, for each positive event perceived. The participants started a timer to begin the one-minute counting period, stopped counting when the timer signaled the end of the counting period, and then recorded the cumulative tally of positive thoughts on a piece of paper. Rick later displayed the cumulative daily tallies on Standard Celeration Charts.

## Results

Charts 1 and 2 show the count of negative inner behaviors during the Before Phase and when the one-minute counting period was in effect for each participant, as well as the count of positive inner behavior during the one-minute counting periods. These data present fewer all day counts of negative inner behavior for both participants when the one-minute counting period was in effect, and an acceleration of positive thoughts and feelings across the one-minute counting periods.

Participant 1. Chart 1 shows the Before Phase of 8 days of steady state responding for the first participant's negative inner behavior. The Before Phase had a frequency spread of 6 to 12 occurrences per day and a celeration value of  $x1.0$ . The During Phase was 17 days of data recorded while the one-minute counting period was in effect. The negative inner behavior had a frequency spread of 0 to 8 occurrences per day, and a celeration value of  $x1.0$ . A jump-down occurred between the Before and During Phase, with a frequency change value of  $+1.9$ .

The other feature to analyze on Participant 1's Standard Celeration Chart is the data from the one-minute counting period. Seventeen days of the recorded occurrences of positive thoughts and feelings spread from 6 to 18 in a one-minute interval. The celeration value of positive

thoughts and feelings multiplied by 1.5 in the During Phase.

Participant 2. Chart 2 shows the Before Phase of 11 days of steady state responding. The Before Phase had a frequency spread of 6 to 14 occurrences per day and had a celeration value of  $x1.0$ . The During Phase was 13 days of data occurring, while the one-minute counting period was in effect. Negative inner behavior had a frequency spread of 3 to 9 occurrences per day, and a celeration value  $x1.0$ . Again, a jump-down occurred between the Before and the During phases, with a frequency change of  $+2$ .

In the During Phase, 14 days of the one-minute counting period, positive thoughts and feelings of Participant 2 had a frequency spread of 5 to 19 occurrences per one-minute counting period. The celeration value of positive thoughts and feelings in the During Phase multiplied by 1.8.

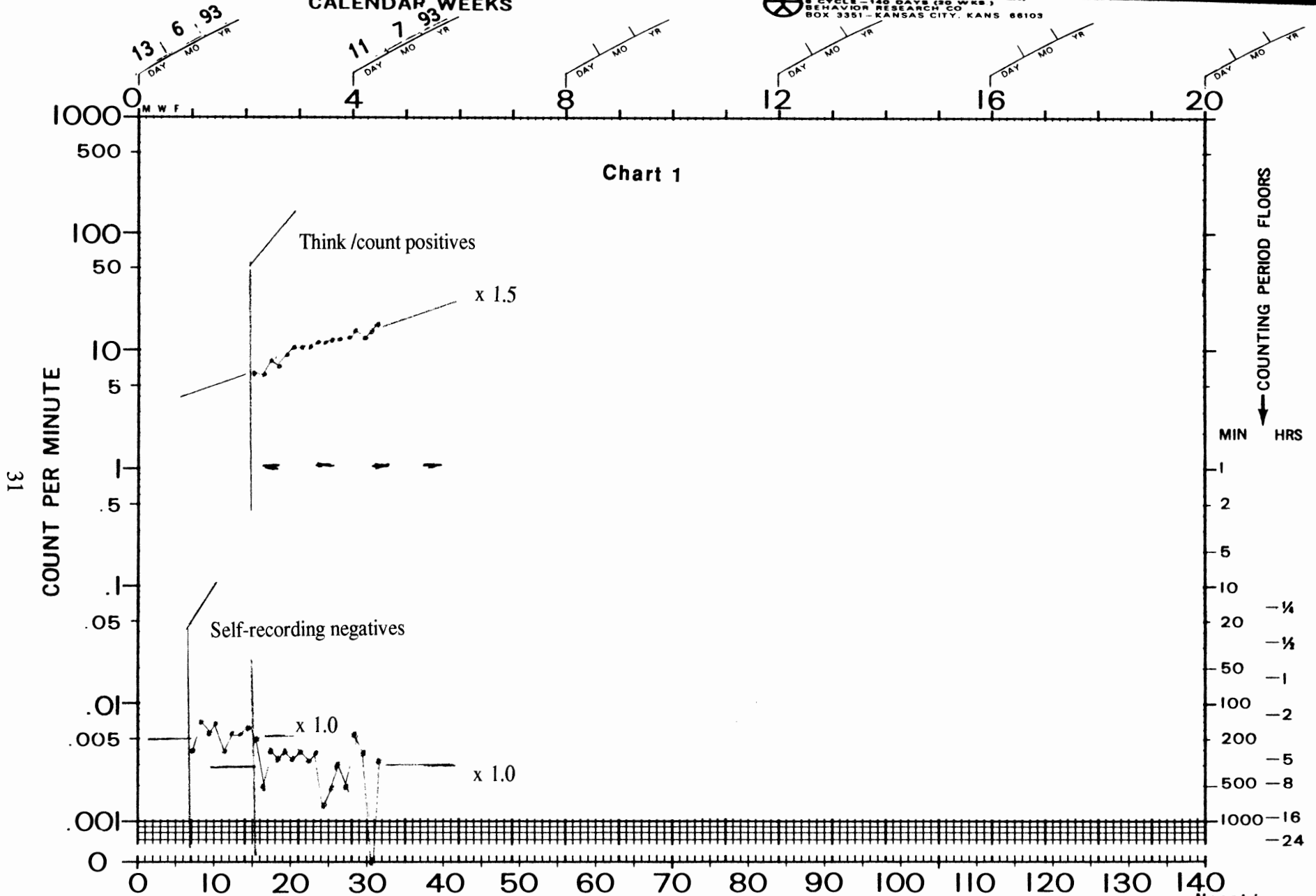
## Discussion

In our study, changes in negative thoughts and feelings jumped-down in performance frequency, supporting Calkin's 1992 finding that her procedure for one-minute counting periods has the greatest effect on the frequency, not celeration, of inner behavior. Weekly celerations, however, identified changes in the positive thoughts and feelings. Also, Calkin (1992) found that the "frequency envelopes" for inner behaviors tend to be broader than for public behaviors. We also found inner behaviors to have broad frequency envelopes, again supporting Calkin's findings.

The participants completed a verbal exit interview, giving them an opportunity to tell us their views on our methods, and we recorded the participants' responses. The exit interview contained no negative responses, nor were there negative responses during the study. Both participants stated that they enjoyed using the one-minute counting procedure and that the outcome was helpful. One participant described the one-minute counting procedure as ". . . a little to get a lot"; that is, the time put into the method, one-minute a day and approximately another ten minutes a day to record inner behavior, was very small for the outcome--a

CALENDAR WEEKS

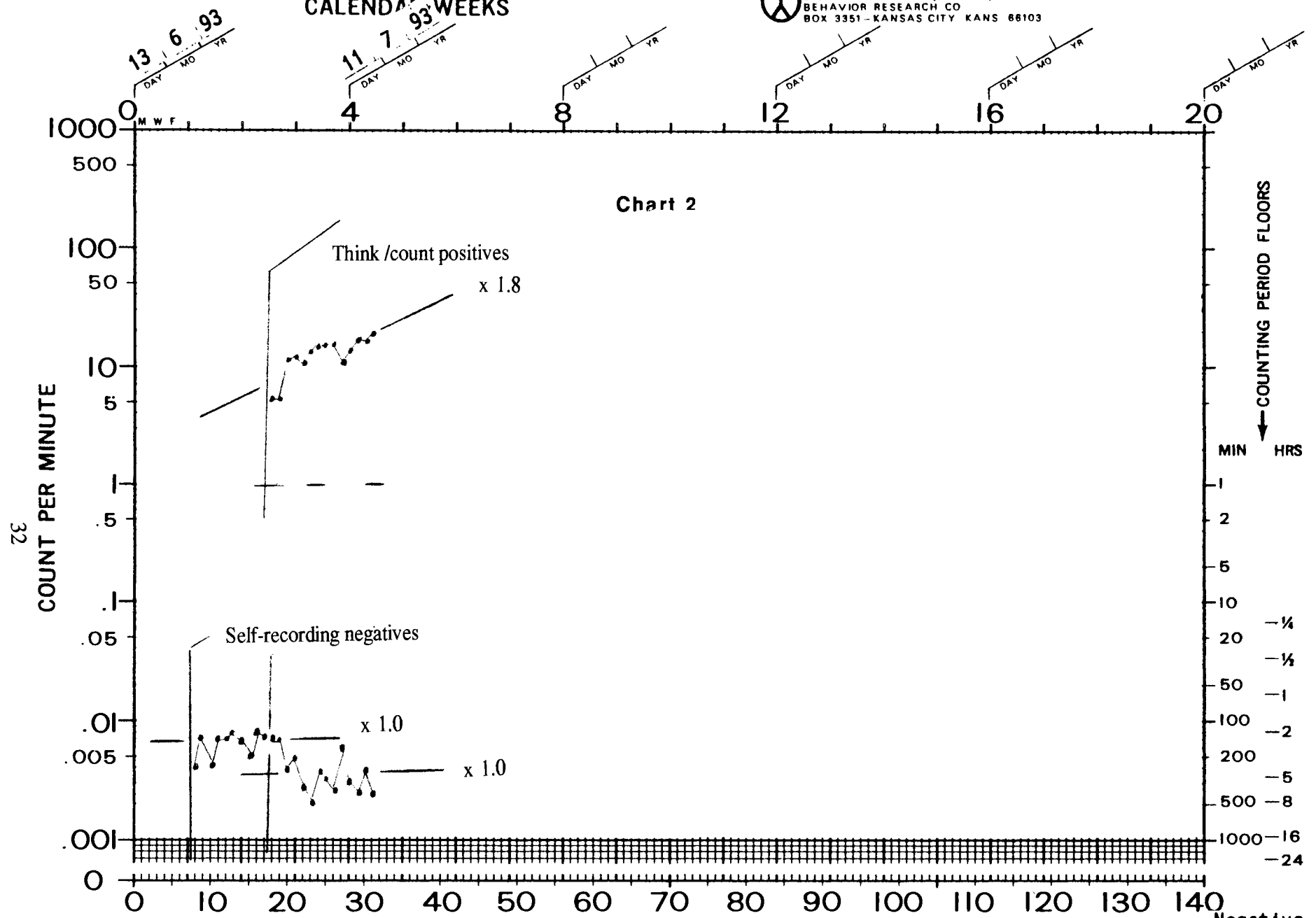
8 CYCLE - 140 DAYS (20 WKS)  
 BEHAVIOR RESEARCH CO  
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Cooper/Haertel R. Kubina			SUCCESSIVE CALENDAR DAYS		Participant 1	88	Senior Citizen	Negative Inner Behavior
SUPERVISOR	ADVISER	MANAGER	Participant 1	Participant 1	BEHAVIOR	AGE	LABEL	COUNTED
	Ohio State University				R. Kubina			
DEPOSITOR	AGENCY		TIMER	COUNTER	CHARTER			

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CALENDAR WEEKS



	Cooper/Haertel	R. Kubina	SUCCESSIVE CALENDAR DAYS		Participant 2	83	Senior Citizen	Negative Inner Behavior
SUPERVISOR	ADVISER	MANAGER	Participant 2	Participant 2	BEHAVIOR	AGE	LABEL	COUNTED
	Ohio State University				R. Kubina			
DEPOSITOR	AGENCY		TIMER	COUNTER	CHARTER			

meaningful reduction of negative inner behaviors. One of the participants noted that she did her one-minute counting period at the beginning of the day, believing it set a positive precedent for the rest of the day. Another common notion shared by the participants was that they became more aware of events that tended to be antecedents to negative inner behavior. They both also expressed that this method would be ideal for ". . . old folks who just sit around all day and do nothing." They believed our procedures were easy to use and time efficient.

Limitations. This study had several limitations. First, the participants in Calkin's (1992) research assessed the effects of the one-minute counting period on both positive and negative thoughts and feelings, and found the procedure more effective with positive thoughts and feelings than with the negative. Participants in our study only recorded the effects of the one-minute counting period on negative inner behavior. Therefore, we did not investigate positive inners, what Calkin found most influenced. Even though the participants stated that they were having more positive thoughts and feelings in the exit interview, without direct measurement of these inners to support that claim we can not determine that the one-minute counting period did function to increase positive inners. Replicating this study with the added dimension of charting positive inners will help to increase the generality of the one-minute counting period. Second, Calkin (1992) suggested that inner behavior analyses should be a minimum of 5 weeks in duration. Perhaps with this time allotment, negative inner behavior would jump-down to lower frequencies than reported in our study. Third, our participants did not set a specific frequency aim (e. g., 0 to 3 negative thoughts or feelings per day) besides a general reduction of negative inners. Finally, we did not assess retention of the reduction of negative inner behaviors.

Future Research. Skinner wrote much on the inclusion and acceptance of inner behavior in a natural science of behavior. Many behavior analysts, however, still view inner behavior as something like a hypothetical construct, believing that inner behavior is beyond the realm of scientific study because there can be no

interobserver agreement. Skinner (1953, 1964, 1974) repeatedly made statements to allay this concern:

No entity or process which has any useful explanatory force is to be rejected on the ground that it is subjective or mental. The data which have made it important must, however, be studied and formulated in effective ways. The assignment is well within the scope of an experimental analysis of behavior, which thus offers a promising alternative to a commitment to pure description on the one hand and an appeal to mentalistic theories on the other. (1964, p. 96).

The research done in Precision Teaching with inner behavior succinctly follows Skinner's appeal. Research on inner behavior has not received the attention it deserves. The dramatic results it has attained imply that the behavioral community will benefit greatly from improving inner behavior research methods, such as the one-minute counting period.

Skinner (1974) maintained that a behavioral analysis does not reject any of the "higher mental processes," but is indeed at the forefront of determining their nature. Charting and applying measurably effective methods such as Calkin's one-minute counting procedure to affect inners will extend behavioral analysis to inner behavior.

Skinner stated:

What a person feels is a product of the contingencies of which his future behavior will also be a function, and there is therefore a useful connection between feelings and behavior. It would be foolish to rule out knowledge a person has of his current condition or the uses to which it may be put.... In casual discourse the limits of accuracy.... are not necessarily serious, but we can nevertheless predict behavior more accurately if we have direct knowledge about the history to

which feelings can be traced.  
(1974, p. 230).

Charting inner behavior provides a permanent historical record of a direct frequency count of a person's perceived thoughts and feelings. We need further research on the experimental control over inner behavior. A future research project could address the relation of studying the effects that inner behavior change has on public behaviors.

Other suggestions for future research with inners follow. Calkin (1992) stated that the effect of frequency, not celeration, growth of inner behavior is a question for future research. Does this occur because of "project supervision" or some other unforeseen variable? Does this phenomenon occur with other inner behavior? We need to address all of these questions in the further research of inners. We need to include more and different age and cultural groups as participants to extend the study of inners. Currently, research indicates that the one-minute counting period is effective for diverse age groups, but we need further research and replications to expand the body of proof. We need to also determine the effects of the one-minute counting period for different pinpoints (e.g., anger management, weight control, smoking cessation). Educators and social scientists use *public* interventions to change behavior related to dieting, smoking, fighting, and so on. Affecting these troublesome behaviors by inner behavior management may be one buttress towards the validity and inclusion of the study of inner behavior as natural science. As a last suggestion, we may need to determine what collateral public behaviors accompany the use of the one-minute counting period. Another way to validate the one-minute counting period is to count simultaneously some external behavior that relates to the inner behavior, but determining the effects of an inner behavior intervention by counting external public behavior is indirect measurement.

### *Summary*

This study sought to determine the effectiveness of a one-minute counting period with two female senior citizens, aged 83 and 88, who daily, self-recorded perceived occurrences of

negative inner behavior. In the Before Phase, participants only tallied negative inner behavior. Following the Before Phase, they reduced negative inner behavior by tallying as many positive thoughts and feelings they had during a one-minute interval of time. Our results correlated the one-minute counting period with the reduction of negative inner behaviors for both participants. During an exit interview, the participants said they enjoyed using the procedures, and that they believed these procedures would benefit other senior citizens as well.

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