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#### TECHNICAL NOTE: A SIMPLE CALCULATOR TO COUNTER CONVERSION

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Lindsley (1968) has noted an inexpensive mechanical counter now widely available, and McGreevy (1981) has listed a series of devices that may be used as counters.

When it is desired to have a behavioral event counted without a separate "push the counter" movement, or when the frequency of the behavior is greater than a mechanical counter will accommodate, an option to consider is an electronic counter. Any calculator with a "repeat function" feature (usually part of the "equals" key) can be so used by simply entering the key sequence -1, +1, =; and every subsequent depression of the "=" key will increment the total by 1.

However, this method requires a mechanical depression and release of the "=" key. For some clients, a larger keypad surface may be desired, and for some applications, e.g. wheelchair pressure relief push-ups or refrigerator door openings, a mechanical arrangement to physically push the "=" key may be clumsy or unreliable. Instead, wires may be added to a calculator "=" key contacts such that simply shorting the wires increments the counter. That arrangement permits a wide variety of switches and types of contact devices to be used.

An inexpensive (about \$10.00) calculator, the Unsonic 1541L, is very readily converted to such a counter without disturbing any of its calculator functions. With the calculator turned off, the case may be pried open by gently working a screwdriver blade around the joint at the perimeter of the case. Small cracking sounds will indicate that the latches holding the case together are breaking, which is normal. The bottom of the case will come off, exposing a printed circuit board attached at both ends by bare gold wires. At the bottom end of the calculator (away from the display), 17 wires join the printed circuit board to the keyboard back. Strip 1/8" of insulation from two wires of any length or gauge desired (#22 stranded, insulated wire is convenient) and solder one of them to

the 7th gold wire and one to the 11th gold wire, counting from either end of the array (see Diagram 1). Pencil marks on the edge of the board next to the appropriate wires will mark the ones to be soldered. Do not allow solder drops or any other contact with the remaining gold wires. The two soldered wires will be separated by 3 untouched ones. If you use #22 stranded wire, then 2 small 1/16" holes drilled anywhere convenient in the case will permit egress of your new leads. Gently lead the new wires out of the calculator case. Make sure that no extraneous contacts or shorts can occur.

Replace the back cover and turn the calculator on. Enter -1, +1, =, and then touch your two new leads together several times. The display will increment each time you short and release the two wires, as you are simulating a depression of the "=" key. These new leads may then be attached to any sort of switching device that makes and breaks contact, and you have an electronic counter with a wide variety of applications.

#### REFERENCES

Lindsley, O. R. A reliable wrist counter for recording behavior rates, *Journal of Applied Behavior Analysis*, 1968, 1, 77-78.

McGreevy, P. *Teaching and learning in plain English*. Kansas City, Missouri: Plain English Publications, 1981.

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## Chart-sharing

#### THE KEY TO SUCCESS

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The client is a 27-year-old mentally retarded male named Cliff. Cliff lives with six other

clients at a group house managed by the Regional Developmental Center in Wayne. He has lived at the house for several years. According to the house manager, Cliff was unable to unlock the outside door of the house. This limited his mobility and independence.

The house manager completed a task analysis of the door unlocking process which included the following twelve steps: has key with him, gets key out, holds key, inserts key, turns key, turns knob, turns key and knob, pushes door open, removes key from door, puts key away, closes door, and opens door independently.

We practiced the steps for three days using the front door to the house. A 30-second counting period (timing) was used. As seen in Chart 1 there was no progress. In fact, during the initial three days of timings, Cliff had a great deal of difficulty inserting the key into the lock and did so only on the second day. The following changes were made in the training program. The practice session was moved to an indoor setting using an almost identical key, lock fixture, and door. A new task analysis was completed. It consisted of six rather than twelve steps, and started with "inserting key into lock." The process included these steps: inserts key, turns key, turns knob, pushes door open, removes key, and closes door. These 6 steps were each attempted once during a timing that varied from day to day. After each timing, Cliff would look at the stopwatch to see how fast he could unlock the door. Training sessions, which immediately followed the timing, included practice inserting the key into the lock and practice of the entire procedure three times. On occasion, candy and cookies were given to Cliff following practice sessions.

The results were terrific! In just six days, Cliff progressed from barely getting through two steps in 30 seconds to unlocking, opening, and closing the door in approximately 10 seconds. The acceleration is about X3.

Cliff enthusiastically approached training sessions. The authors feel the social interaction between Cliff and Carrie as well as the continued daily improvement in performance contributed significantly to Cliff's reliably enthusiastic response to training sessions. His self confidence improved greatly since the initiation of this program. The house manager made and continues to make positive statements concerning Cliff's independent behavior. Carrie is currently learning sign language vocabulary and teaching that vocabulary to Cliff.

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elementary and special education at Wayne State College, Wayne, Nebraska. She is also a part time employee of the Regional Developmental Center in Wayne. Bob Bower is an assistant professor at Wayne State College, Wayne, Nebraska, 68787 (402-375-2200).

### STANDARD ACCELERATION CHARTING GROWS YEARLY AT ABA

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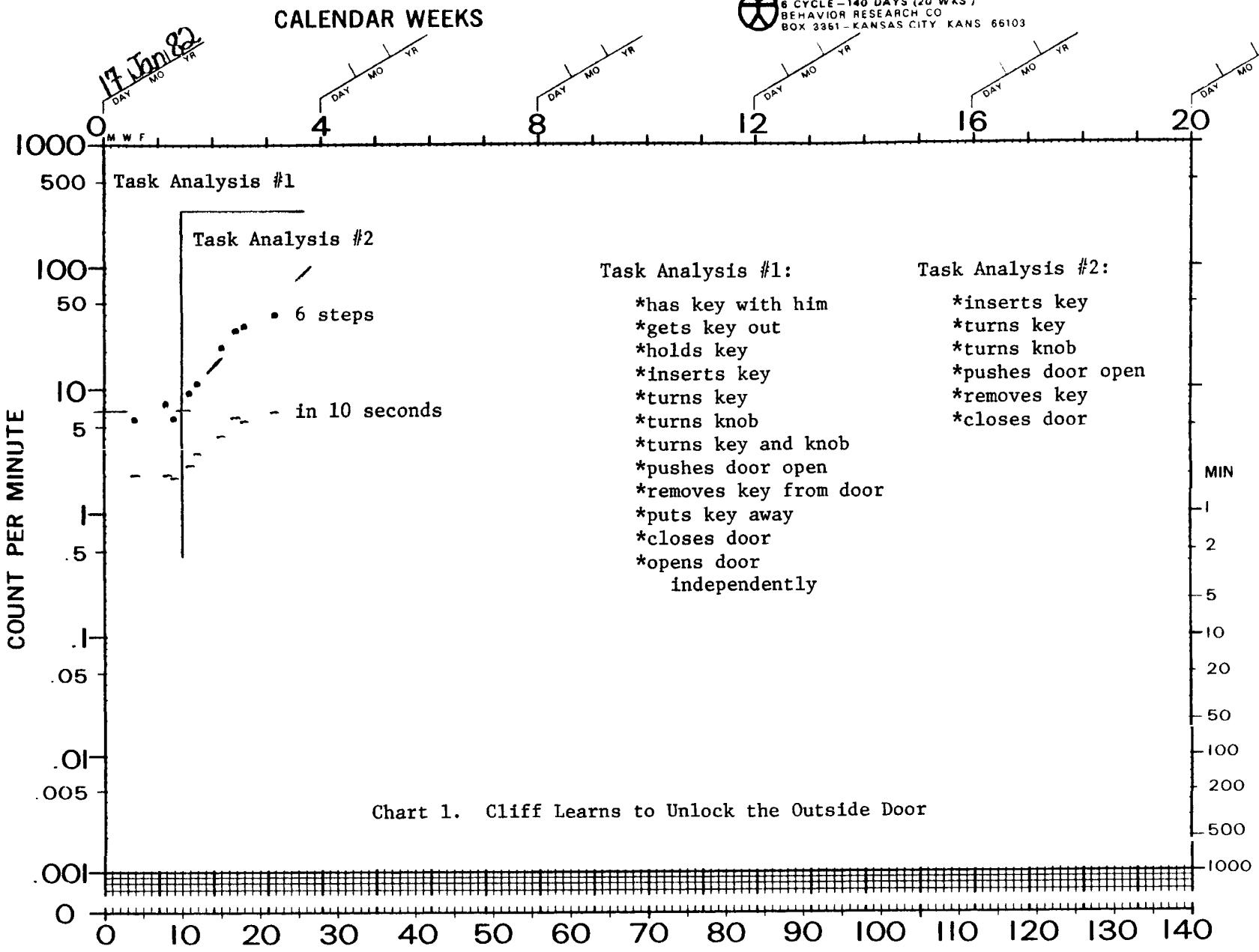
The following excerpt from The Behavior Analyst describes ABA. "The Association for Behavior Analysis is an interdisciplinary group of professionals, paraprofessionals, and students interested in the experimental, theoretical, and applied analysis of behavior. Founded in 1974, ABA was organized to establish a separate identity for behavior analysts working in diverse disciplines and to promote the development of behavior analysis as a profession, a science, and a means for improving human welfare."

The Eighth Annual Convention of the Association for Behavior Analysis (ABA) will be held 27-31 May 1982 in Milwaukee, Wisconsin. Standard Acceleration Chart (SCC)-sharing sessions have been a part of the last two conventions, and in these sessions, individuals have expressed interest in seeing how the SCC has grown in use at ABA.

The counts come from the index of each yearly program, with the exception of the second year program which I haven't been able to find.

For each year, I counted the number of presenters listed in the program, and the number of total presentations, first for ABA presenters as a whole and then for individuals that I identified as "Standard Acceleration Charters" or "Precision Teachers." These results are shown in Charts 1 & 2. The counts are obviously not "true values," but are likely to be representative of the way things were. One can see that if the growth of Acceleration Charts and ABA continue at the same acceleration, all of ABA will be using Standard Acceleration Charts around 1995, and all the people will be "Charters." Do you think that will happen? A tendency exists for growth from within an organization to be seen as a "cancer" when the size of the subgroup becomes about 1/5 of the entire organization (Lindsley, 1982).

For those attending the 1982 convention, two Chart-sharing sessions will be held. The first has been planned to preview all the Chart sessions of the entire conference with five-minute summaries by the presenters. This is



- Task Analysis #1:**
- \*has key with him
  - \*gets key out
  - \*holds key
  - \*inserts key
  - \*turns key
  - \*turns knob
  - \*turns key and knob
  - \*pushes door open
  - \*removes key from door
  - \*puts key away
  - \*closes door
  - \*opens door independently
- Task Analysis #2:**
- \*inserts key
  - \*turns key
  - \*turns knob
  - \*pushes door open
  - \*removes key
  - \*closes door

Chart 1. Cliff Learns to Unlock the Outside Door

Brown, Carrie and Bower, Bob. The key to success. Journal of Precision Teaching, Volume III, Number 1, Spring, 1982.

Bower	Bower	Carrie Brown	SUCCESSIVE CALENDAR DAYS	Clifford B.	27	completes steps
SUPERVISOR	ADVISER	MANAGER		BEHAVIOR	AGE	LABEL COUNTED
Regional Developmental Center	Wayne, Nebraska			Carrie Brown		to unlock outside door
DEPOSITOR	AGENCY	TIMER	COUNTER	CHARTER		