

Myriad Counter (or, beads that aren't for counting)

from Teaching Exceptional Children, Summer, 1974

by Eric Haughton, Ph.D.

■ We have been using a variety of counters to count a host of behaviors for the last few years (Duncan 1969, 1971, 1972; Berger, 1972; Haughton, 1971). Lindsley (1968) described a high quality Swiss golf score counter you wear on your wrist and that lasts indefinitely (Haughton, 1972). And even as the report became public, the company changed the works so it tended to break down. Behavior Research (Box 3351, Kansas City, Ks. 66103), Rist-counter (116 South 42nd St., Omaha, Nb. 68131), and Counter Production (Rt.#5, Box 69W, Excelsior, Minn. 55331) now market a movement cycle counter producing precise counts. Later, Bob Mattos (1968) described a desk style ideal for use in a book or classroom setting. The story of our attempts to find a reliable personal counter that was compact, precise, and reliable will likely be related in the future (Gordon, Jr., 2001). The search takes us into sewing boxes, laboratories, zoos, pool rooms, golf and country clubs, shopping markets, toy houses, and radio shacks.

Then one day Bob and Judy from Ambler, Arkansas, visited Elizabeth and me. They took up the idea of counting but didn't appreciate mechanical counters or their cost. So they picked up a piece of leather thong from around the Oregon ranch and strung a few wooden beads on it. The birth of our prototype bead abacus counter! The counter looked comparable to that in Figure 1.

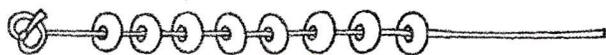


FIGURE 1

A sketch of the original abacus counter made by Bob and Judy circa 1969.

One bead was darker so you knew on which end you started your counting. Moving a bead to the left indicates a count of the event, to a total of 8.

Shortly after Bob and Judy shared this development we asked some young people who were skilled at making leather clothing to make some wrist bands with rows of beads on heavily waxed linen thread. And then the problems of abacas reliability began. I won't go through everything we've tried, but Phil and Joyce Celver (1970) who teach in Auburn, Washington, came up with the idea of threading beads on fuzzy pipe cleaners, and it worked! Before this we tried lots of different kinds of threads and string and fishing line. A really heavy, waxed linen thread works for a while then it gets too easy to slide and the beads start to slip. Monofilament fishing line combined with thread is fairly good (Shank, 1970), but then beads slipped on that set up too. We've also tried elastic thread like ladies use in their panties. Not too successful. Some people have tried making a channel to slide beads into, or indentations in the leather so the beads bump along and don't slide. Both ideas are complicated and don't work too well.

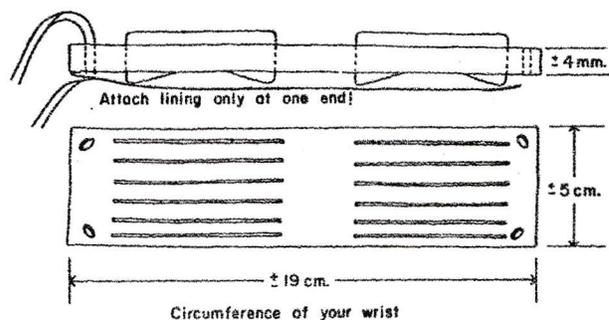


FIGURE 2

Top and side views of a good idea of how to set up a simple abacus counter. Jim Byrnes (1972) and the ENCOR group has found it best to attach only one end of the liner. Fits better, and less problems that way.

To this point leather bands, lined with a light, soft leather with rows of beads strung on pipe cleaners are the cheapest, most precise and reliable counters we have available. And not only can you make them yourselves, but they are an attractive tool in understanding and projecting your future (Koenig, 1972; Pennypacker, Koenig and Lindsley, 1972). Total cost, about \$2.00 to set up a counter designed to count 15 to 20 events.

DESIGN

A simple, easy design looks like those sketched in Figures 2 and 3, and yet the design is basically up to you; you can design away to your heart's content.

The one I am using currently is a modular design, so I can mount a counter along with the abacus style counters (Figure 4).

For some movement cycles or responses (such as food reaches) you may want a counter that works a bit faster and easier than sliding beads.

A myriad of men is an ancient measure of large numbers. You take a length measure in a rope, like a stadia and put it around as many soldiers as can fit inside! This developed when armies got so big everyone got tired of marching past a reviewing stand to get counted. Or counters asked for more pay.

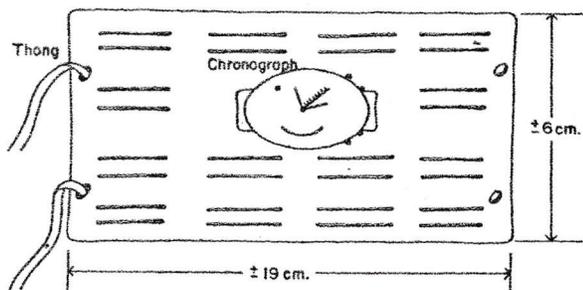


FIGURE 3

An abacus wrist counter using base 5 pairs of beads and with a chronograph mounted to make precise timing easier.

TABLE 1 WHAT YOU NEED TO MAKE YOUR WRIST COUNTER

Following is a list of supplies needed for preparing an abacus wrist counter. You will need some leather tools to cut and punch the leather but usually you can borrow these from a friendly IMC, OT, YM-YWCA, YW-YMHA, BSA or other philanthropic organizations.

- 1 large piece of good stiff, oak tanned leather
- 1 equally large piece of really soft, sexy leather for a liner
- 1 package of pipe cleaners
- 100+ beads. Be sure you check that the beads and the pipe cleaners are compatible. Otherwise it doesn't work the first time and you have to have another try.
- 1 piece strong leather thong
- 1 metric ruler to simplify using centimeters in precise measurement steps.

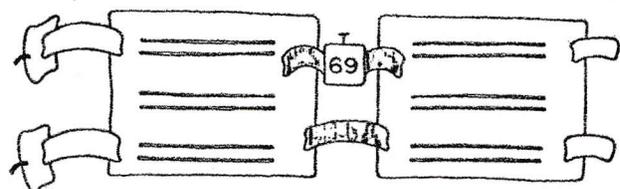


FIGURE 4

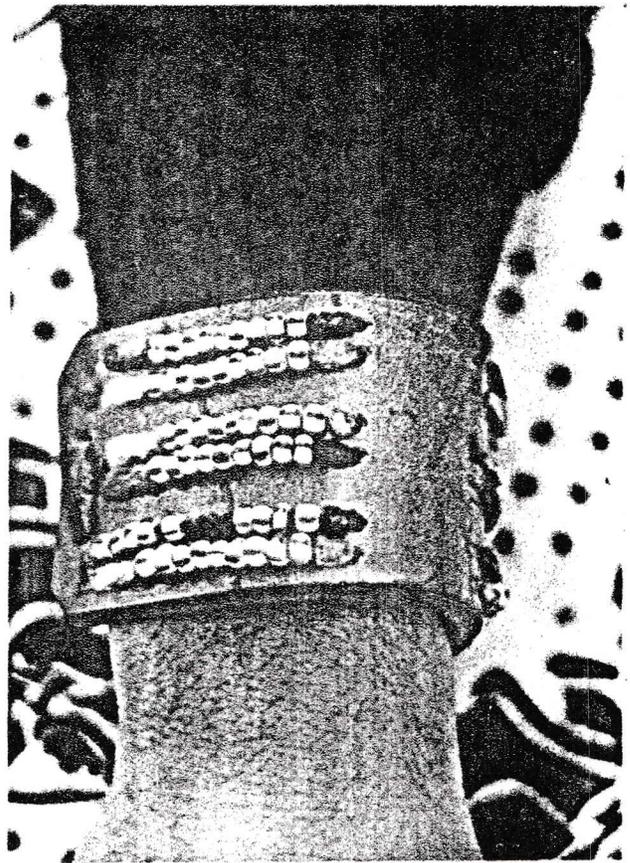
A modular design abacus counter with a mechanical counter included.

FIGURE 5

_ / _ / _
DAY/MON/YR

happy feelings _____
 sad feelings _____
 sex urges _____
 things planned _____
 things done _____
 self put ups _____
 self put downs _____
 offers of help _____
 applied helps _____
 ☺ peer thoughts _____
 ☹ peer thoughts _____
 ☹ peer thoughts _____
 past thoughts _____
 present thoughts _____
 future thoughts _____

Pieces of paper on which you write your pinpoints and then tally with a pen or pencil are really helpful counting tools, too.



While you are making your abacus counter, you might try taping a 20 to 25 cm. piece of stiff paper to your wrist (Haughton, 1969). Write your pinpoints on the paper and tally with a pen or pencil as shown in Figure 5. It's a good counting system and will get you into the habit. Or you can order a wrist tally board from Behavior Research, and bead counter

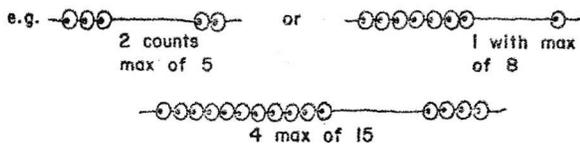


FIGURE 6

Using rows of beads with a few more beads than you will actually need is one way to set up counting rows.

from Ristkounter or Establo Importing Co. (20 Wilson St., Guelph, Ontario, Canada).

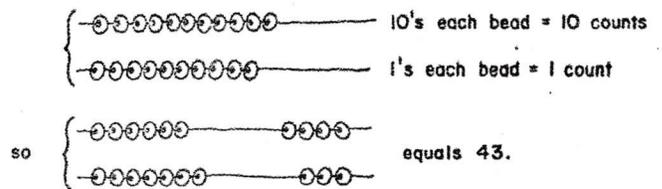
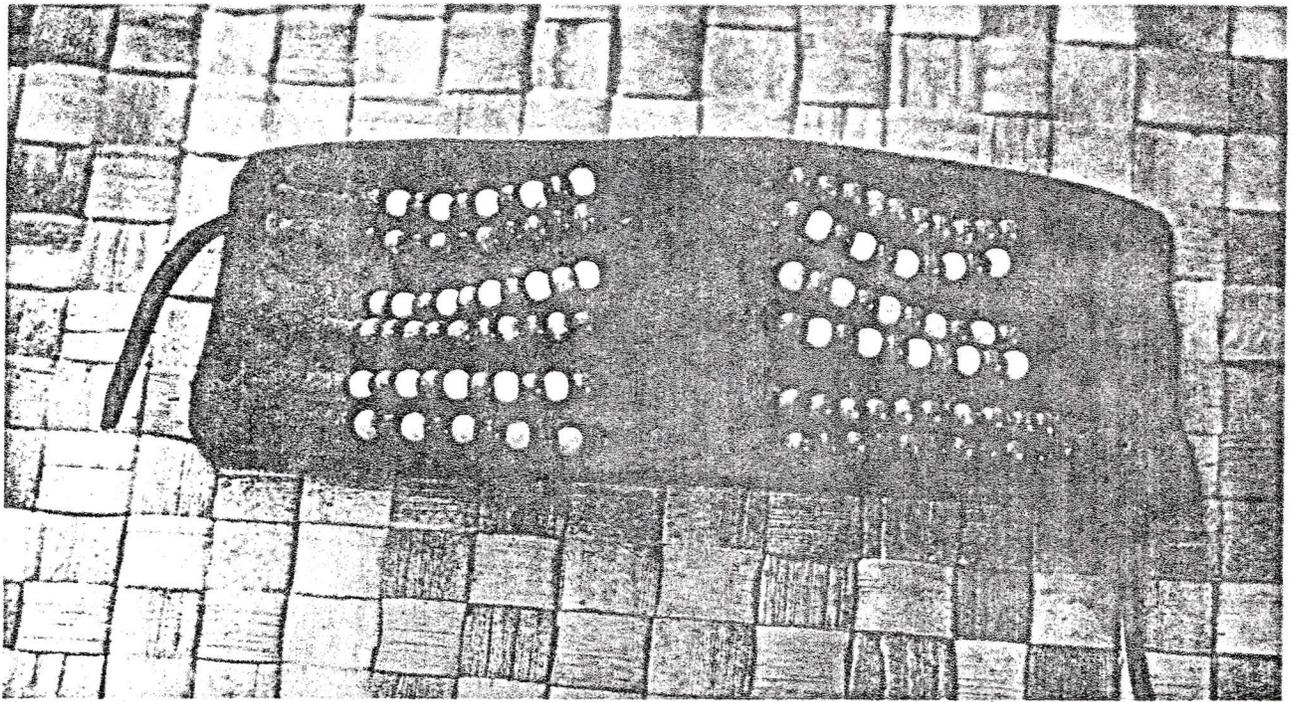


FIGURE 7

A base ten system of counting beads offers quite a bit of flexibility and you can count high numbers for movement cycles that get up to 80's or 100's a day.



ABACUS TECHNIQUES

Bead counting and calculating is very old, though most of us in North America know little of it. When applied to bead counters you have these kinds of options:

1. Enough beads for total count. That is each counting line can have as many beads as you want. From one to hundreds. Practically, your wrist limits this usable total to about 20 to 25. You can have a line of beads representing one event you are going to count. Be sure to leave 10 to 20 mm. for moving the beads (Figure 6).
2. Usual number base, like base 10, the base we are used to. Set this up with two rows (for example) with one row being the 1's and its pair being the 10's row, as seen in Figure 7.
Now, there are some variations you can do with this, for example, Og Lindsley suggests

only 9 beads on the ones row so you reduce the redundant bead move of the 10th bead and *also* the 10's bead. In the diagram I've represented 10 ones and also 10 tens. You don't have to have 10 tens, you might not need a count of 110 this gives you, so you might only count 3 or 4 tens.



PLANNING

By taking a set of beads and setting the number of things you have to do in a day, you get a direct read out on your planning, things accomplished, and the frequency of things left undone! Thanks to Phyl Meredith, over coffee (1972, 18 Dec., '72).

OTHER NUMBER BASES

Dick Genardi (1969) did some basic research and then taught me the Japanese-style abacus which is a

modified base 5 design. Wells Hively (1972) and Gord Kirkland (1972) use a base 5 counter. From this example you see that there are five one's beads and any number of 5's beads. To keep "pure" symmetry you may want to allocate five to each pair, especially if your *count* will not exceed 30. Yours could look like that in Figure 8.

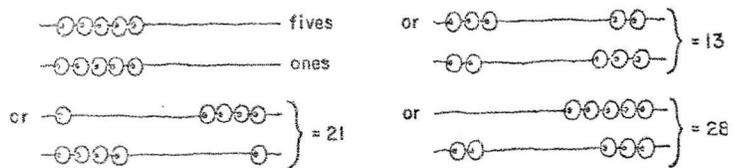


FIGURE 8

For lower frequency patterns a base five works really well. You can even mix base five and base ten counting beads on the same wrist counter.

Here we'll end the abacus examples. They could go to ∞ , but I've some counting and charting to do. Try making some with good materials. You'll enjoy it and also give yourself a good, fun, learning tool.

Good counting and charting along with peace in precision.

REFERENCES

- Berger, Kathleen S. *Adolescent self charting and change*. (Doctoral dissertation, Yeshiva University) New York, N.Y., 1972.
- Duncan, A. D. Self-application of behavior modification techniques by teenagers. *Adolescence*, 1969, 16, 554-556.
- Duncan, A. D. The view from the inner eye: Personal management of inner and outer behaviors. *TEACHING Exceptional Children*, 1971, 3, 152-156.
- Duncan, A. D. The gifted count and chart. In J. B. Jordan and L. S. Robbins (Eds.), *Let's try doing something else kind of thing*. Arlington, Va.: The Council for Exceptional Children, 1972.
- Haughton, Eric. Great gains from small starts. *TEACHING Exceptional Children*. Spring, 1971, 3, 141-146.
- Lindsley, O. A reliable wrist counter for recording behavior rates. *Journal Applied Behavior Analysis*, 1968, 130.
- Mattos, R. A manual counter for recording behavior rates. *Journal Applied Behavior Analysis*, 1968, 130.

PERSONAL REFERENCES

- Byrnes, Jim. Personal communication at ENCOR workshop where they are using abacus counters. Omaha, Nb., 1972.
- Celver, Phil and Joyce. Personal communication—C-V Ranch. Loraine, Oregon, 1970.
- Genardi, R. Personal communication. University of Oregon, 1969.
- Gordon, Jr., F. How I learned abacus counting. Holograph data stored in UN-archive-Book of the Future. Global Village Press. 2001.
- Haughton, Elizabeth. Sharing counting ideas. Castro Valley, Ca., 1969.
- Haughton, Eric. Personal communication—this counter has been in more or less continuous use for about six years. It's not pollution-proof so is showing signs of corrosion. Works perfectly when operated. York University, Downsview, Ontario, 1972.
- Hively, Wells. Personal communication at home. Thornhill, Ontario, 1972.
- Kirkland, Gordon. Personal communication. York University, 1972.
- Meredith, Phyl. Personal communication, 1972.
- Shank, Steve. Making your bead counters functional and attractive. Unpublished discussions, Vida, Oregon. 1970.

