

# A Critical Analysis of H. Schmidt's Psychokinesis Experiments

*Schmidt's random-number generator experiments cannot be considered evidence for PK*

C. E. M. Hansel

In this journal, Kendrick Frazier gave details of an American Physical Society symposium at which Helmut Schmidt's psychokinesis (PK) experiments were discussed.<sup>1</sup> In his review Frazier quotes Ray Hyman as saying: "By almost any standard Schmidt's work is the most challenging ever to confront critics . . . His approach makes many of the earlier criticisms of parapsychological research obsolete." In my own discussion of that research I suggested that Schmidt's experiments were far from watertight and that he "may have been a careless experimenter."<sup>2</sup> I would now like to elaborate upon that statement.

In the case of an experiment giving very high odds against the result being due to chance, under what are claimed to be watertight experimental conditions, a demonstration of flaws in the experimental design should be sufficient to remove that experiment from the repertoire of so-called conclusive demonstrations of paranormal processes cited by parapsychologists. But parapsychologists have been loath to drop any experiment unless the experimenter or the subjects admit to having cheated. It is therefore necessary not only to point out laxity in experimental conditions but also to indicate the precise manner in which the observed scores may have arisen.

I stated that any experiment must stand on its own feet and that when analyzing an experiment it is wise *initially* to adopt the assumption that

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ESP (or in this case PK) is impossible and then see how the result could have arisen through already established processes.<sup>3</sup>

If this approach is adopted, the following conclusions are reached when considering Schmidt's experiments on PK in humans.

1. It would have been a simple matter for the experimenter to bring about the observed result in the absence of PK.

2. The conditions discussed in the report do not remove the possibility of the subjects' bringing about the result.

3. Another outside person could conceivably be responsible for the result.

4. The experiments were inadequately designed in terms of standards already existing within parapsychology.

5. These criticisms apply to other experiments reported by Schmidt.

In Schmidt's PK experiments (reported in the *Journal of Parapsychology*) the subject looked at a display panel containing 9 lamps arranged in a circle, one of which was lit.<sup>4</sup> Approximately each second the light jumped to the adjoining position in a clockwise or counterclockwise direction according to whether a +1 or a -1 was generated by a binary random-number generator (RNG).

The claimed result of the PK experiments involved two degrees of improbability. The subjects attempted to cause the light to move in a particular direction, but their "psychokinetic influence" was claimed to affect the operation of the RNG, whose outputs were indirectly dependent upon a quantum process (i.e., the instant in time when an electron is emitted from radioactive material). The subjects were claimed to affect the radioactive material when they were attempting to affect the light whose movement was determined by the RNG.

In the *New Scientist* Schmidt reported a subsequent experiment in which two subjects, K.G. and R.R., took part.<sup>5</sup> They had scored consistently high and low, respectively, in preliminary tests when attempting to move the light in a clockwise direction. Each subject had to complete a prespecified 50 runs of 128 trials each; a trial was denoted by a +1 or -1 output being generated by the RNG. The result claimed was that with K.G. as subject the light moved in a clockwise direction in 52.5 percent of the total of 6,400 light jumps, whereas with R.R. as subject the light moved 47.7 percent of the 6,400 light jumps in a clockwise direction. These results were obtained consistently throughout the experiment, showing a steady increase and decrease of the accumulated deviations from the chance score (Figure 1). The odds against chance accounting for the difference in scores of the two subjects was stated by Schmidt to be 10 million to one. This experiment will be considered in view of its relative simplicity. Assuming that PK is impossible, something happened during that experiment to

create the difference in the scoring of the two subjects.

It should first be noted that the present discussion should hardly be necessary. As Martin Gardner commented: "It is impossible to evaluate Schmidt's work because he works virtually alone, and no one so far has had any access to his raw data."<sup>8</sup> Since at least the 1930s parapsychologists have been careful to design experiments so that the result is not dependent on the care or honesty of a lone experimenter. The Pearce-Pratt and Pratt-Woodruff experiments each contained conditions that made it impossible (or so it was assumed) for any one person to affect the result.

If we assume that the printout provided an accurate record of the experiment and that the record of the counter readings contained precisely those values indicated during the experiment, the conclusions above still apply.

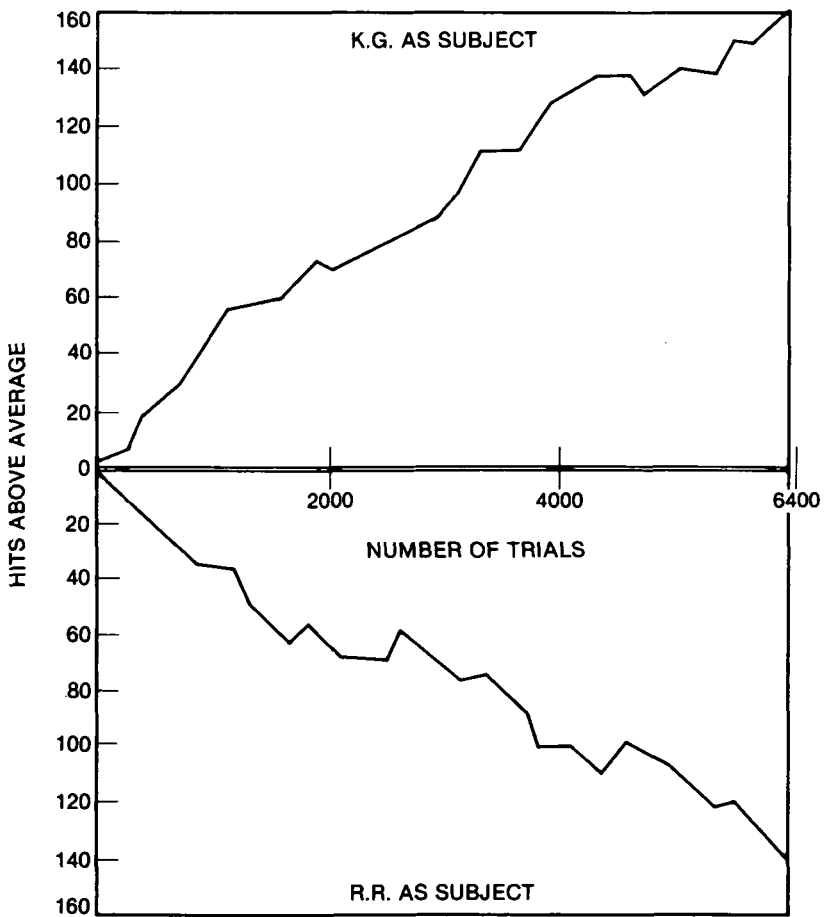


FIGURE 1. Cumulative number of hits above chance value plotted after each 256 trials.

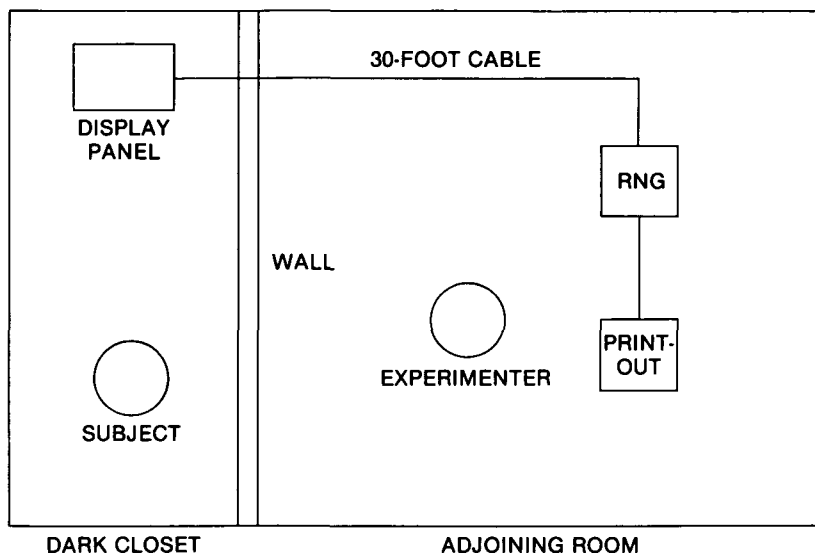


FIGURE 2. Experimental arrangements — schematic and not to scale — employed during PK experiments on humans.

## The Experimenter

The experimenter would have had little difficulty affecting the experiment. He and the subject were in different rooms. The report states: "The subject sat with the display in a small dark closet, and the generator was stationed in another room, mostly as far as 20 feet away from the subject." (See Figure 2.) "The RNG and the experimenter were stationed in the room outside the closet."<sup>7</sup>

The experimenter was in a position to affect the printout, and he also was responsible for recording values on the counters after each run. A remarkably clear demonstration that a printout can be tampered with was provided by W. L. Levy some years later when he admitted to having done so. He was working in the same laboratory as Schmidt, and Levy states in a report that he used an RNG similar to that used by Schmidt.<sup>8</sup> It is even possible that Levy used the same printout employed by Schmidt in his PK experiments.

If the counters operated from the outputs of the RNG, they also would have been affected in the same manner as the printout, as discussed below.

If nonresettable counters (not mentioned in the report) were used, these would have displayed only an excess of  $16 \pm 1$  outputs over 12,800 trials, owing to the fact that the one subject's deficiency of hits was

balanced by the other's surplus.

## The Subject

Since the subject merely gazed at the lights on the display panel, it might at first appear that he was in no position to affect the RNG. But it is likely that he could have affected the counters and the printout, while still inside his dark closet, by shorting either the +1 or the -1 input in the display panel to the earth line according to whether he wished to produce a high or a low score. Shorting the +1 input for a total of about 6 seconds in each run would have produced a deficiency of hits similar to that obtained by subject R.R. Shorting the -1 input in the same manner would account for the surplus of hits obtained by K.G. These inputs to the display panel were connected via a cable to the outputs 0+ and 0- of the RNG. If the counters and the printout were fed from these same outputs 0+ and 0- they also would have been shorted via the cable and would have caused similar deficiencies in the record of +1 and -1 outputs recorded on the paper tape (Figures 3a and 3b).

It might be expected that the use of such a trick would have been evident to anyone watching the printout, since the jumps normally arose at "typically one second intervals," but if there were any variations in this time interval an omission would have been more difficult to detect and

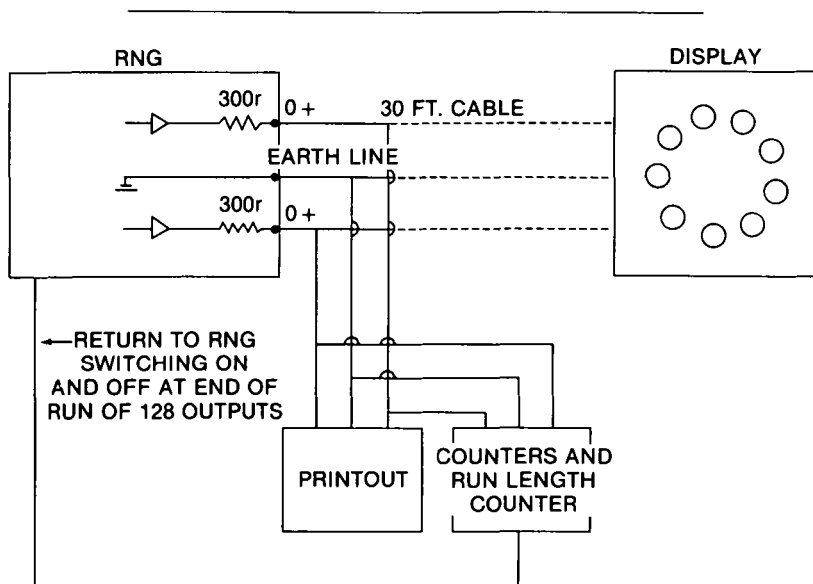


FIGURE 3a. Possible manner in which the RNG outputs were connected to the display panel, printout, and counters in the PK experiments.

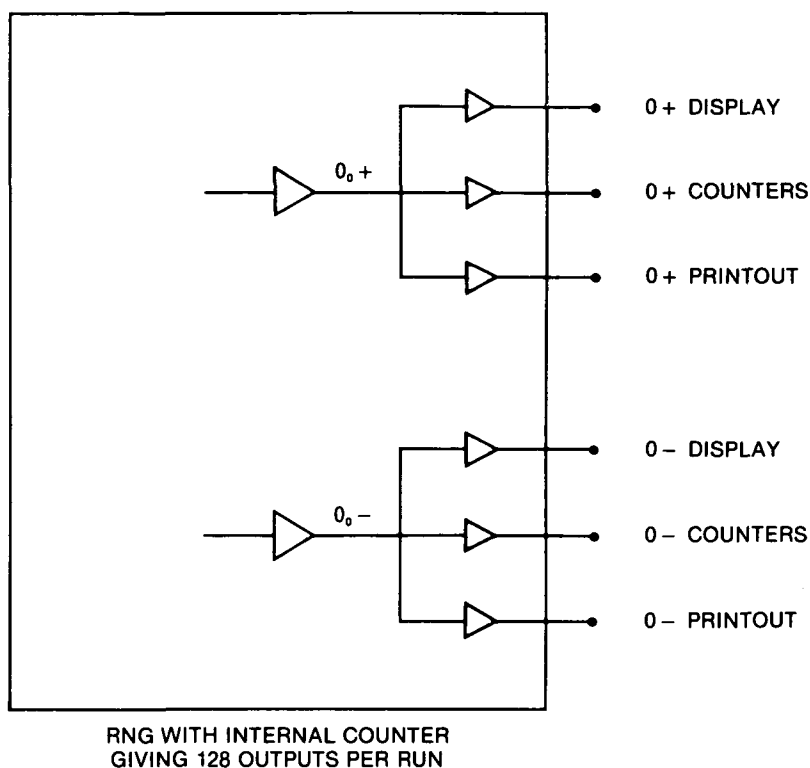


FIGURE 3b. Isolation of outputs of RNG to give independent operation of display panel, counters, and printout.

would have required constant vigilance on the part of the experimenter.

The circuit diagram of a similar type of RNG, published in the same volume of the *Journal of Parapsychology*, does not contain means for stopping the RNG at the end of a run.<sup>9</sup> If the number of outputs (128) in each run was determined by additional circuitry running from the RNG outputs that stopped the RNG after each 128 outputs, the length of the run as recorded on the printout and on the counters would not be affected through shorting either  $0+$  or  $0-$  outputs to the earth line.

Another feature of the RNG circuit given in the *Journal of Parapsychology* is that the  $0+$  and  $0-$  outputs are connected to the output transistors via 300-ohm resistors, so that shorting an output would not damage the output transistor in the machine (see Figure 3a) or affect the other output.

Figure 3b shows how the various outputs could be isolated. With this modification, only the experimenter would be able to affect the three outputs by shorting outputs  $0_0+$  or  $0_0-$  to the earth line.

## **Other Persons**

Anyone conversant with the circuitry could have brought about the same result by tapping the 30-foot cable connecting the display panel to the RNG. Precautions do not appear to have been taken to ensure that connections to the external apparatus were sealed and checked after each experiment.

## **General Design Features**

Checks on the efficient operation of the RNG were made by letting the machine run “frequently unattended” to confirm the absence of any systematic bias. It is not stated when these checks were made during the course of the experiment, and the system employed is far from satisfactory.

In an experiment of this nature it is necessary to compare the results of an experimental series with those of a control series in which the factor being investigated is absent but which is similar to the experimental series in other respects. Had a control series been incorporated in the design in a suitable way, many of the difficulties discussed above would have been overcome. Thus each run could have been made as either (1) an experimental run or (2) a control run following the toss of a coin or some other more sophisticated randomization procedure. The subject would not be “willing” the light to move, or he would aim at moving the light in the opposite direction, during control runs.

To control the experimenter, only the subject or an independent investigator should have a record of which condition was used for each run. It would have been a simple matter to incorporate control series in order to safeguard against trickery on the part of each person involved in the experiments and to check the efficient operation of the RNG.

Schmidt should have realized that some critics would regard the processes being investigated not so much as highly unlikely but as utterly ridiculous. His results might be sufficient to convince his fellow parapsychologists, but critics would wish to establish what went on during the experiment to bring about the result. It was either extreme carelessness in collecting data or carelessness in employing methods and procedures that permitted alternative explanations.

## **Conclusions**

1. The conditions reported by Schmidt did not eliminate the possibility of trickery.
2. Whether or not a trick was used by the experimenter, by a number

of subjects, or by an outside person, the experiments cannot be considered as providing evidence for PK.

3. Further information about the apparatus might eliminate the possibility that any of the subjects or any outsiders were involved.

4. Unsatisfactory features are also evident in other experiments reported by Schmidt, both in the experimental design and in the apparatus used.<sup>10</sup> These other experiments should be considered in relation to features also present in the PK experiments.

## Notes

1. Kendrick Frazier, "Schmidt's Airing at the A.P.S.," *SKEPTICAL INQUIRER*, Summer 1979, pp. 2-4.

2. C. E. M. Hansel, *ESP and Parapsychology: A Critical Re-evaluation*, Prometheus Books, Buffalo, N.Y., 1980, pp. 220-233.

3. See Note 2.

4. Helmut Schmidt, "A PK Test with Electronic Equipment," *Journal of Parapsychology* 34 (1970): 175-181.

5. Helmut Schmidt, "Mental Influence on Random Events," *New Scientist* 20, June 24, 1971, pp. 757-758.

6. See Note 1.

7. See Note 4.

8. W. J. Levy, Jr., and Anita McRae, "Precognition in Mice and Birds," *Journal of Parapsychology* 35 (1971): 121.

9. Helmut Schmidt, "A Quantum Mechanical Random-Number Generator for Psi Tests," *Journal of Parapsychology* 34 (1970): 219-224.

10. Helmut Schmidt, "Anomalous Prediction of Quantum Processes by Some Adults," *Boeing Research Laboratory Document*, D1-82-0821, February 1969. ●