THEORY-BASED CONTROL IN AN UNATTENDED FORCED-CHOICE PSI STUDY WITH A SPECIAL SUBJECT[1].

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Abstract

While being aware of the necessity for control in parapsychological experiments, we make a plea for 'sloppy' conditions, especially in those cases in which the sterility of the laboratory results in the loss of those environmental factors that may facilitate the production of strong effects by gifted subjects. In this study, the manipulation of a theory-relevant variable (i.e. feedback) served as a control against cheating. Significant above-chance scoring was obtained in a binary color card guessing task if the delayed feedback was correct (scoring rate = 58%; $p < 0.014$) while in the no-feedback and incorrect delayed feedback conditions scoring was at chance level (48.5%). In the direct feedback condition no (theory-based) control was implemented and the scoring rate was at 64% ($p < 0.00001$). The results were interpreted as supporting the Observational Model of psi phenomena. Furthermore, post hoc incline effects and the difference between direct and delayed feedback may indicate the relevance of the length of time elapsed between guess and feedback.

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[1]For more information and raw data, see The electronic Journal of Anomalous Phenomena, 97.1, <www.psy.uva.nl/eJAP>.

Introduction

This article raises the matter of bringing theory-based controls into the field. We used the observational theories (OT's) for this purpose. In the OT's feedback is seen as a crucial element in the creation of psi (Millar 1978). In this experiment we used hidden manipulation of feedback as a control in testing a special subject in his uncontrolled environment.

Methodological discussion does result in improvements of laboratory controls and procedures. Occasionally members of the sceptical community contribute to this discussion in a positive way, by suggesting procedures designed to prevent alternative explanations of ostensible paranormal data (Morris, 1986).

However, one sometimes gets the impression that the demand for control is not determined by legitimate concerns about methodological rigor, but instead by the conservative attitude of so-called sceptics[2].

Although an examination of modern parapsychological methodology shows parapsychologists to be in compliance with the most stringent rules of scientific research, the application of such rules could well scare away the object of research, the psi phenomenon, resulting in small effect sizes. In any case, whatever controls imposed, for any experimental set-up there always remains alternative, normal explanations for the apparent psi-results (Bierman 1981).

As an alternative to this development another line of research suggests itself. Provided that fraud can be ruled out as an explanation, working with 'gifted[3]' subjects outside of the laboratory offers an opportunity to gain more insight in the psycho-dynamics of psi and may contribute to theory-driven, process-oriented research. Working with such a subject, this study, the outlines of which were presented at the 1992 PA-convention (Bierman & Gerding 1992)[4], was conceived as a test of the possibility of fraud prevention by hidden manipulation of the experimental context in a theory relevant way.

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[2]Even the retro-PK experiment with a sceptic as outside observer which have been proposed as fool-proof (Schmidt et al., 1986), leaves open the possibility of fraud using advanced technology and loopholes in the protocol (Bierman, 1991).

[3]Gifted subjects come along with outstanding psi abilities and seem to have better control over them. Because they have been experimenting on their own, know their own psychic functioning and have confidence in their own abilities, they are well suited for research. If a gifted subject is or wants to become publicly known s(h)e has a reputation to protect or to build. In that case researchers must be aware of the possibility of fraud. Although high scoring subjects often lose their abilities, we have to recon with spontaneous recovery. (Morris 1978, pp. 15-17, Palmer 1978, pp. 60-64)

[4] With this approach we adhere to the well received publication policy of the *European Journal of Parapsychology* recommending the announcement of experiments before data collection takes place.

Method

Subject

The special subject concerned is A.K., who has reported scoring rates between 62% and 76% (95% confidence interval) in a self-administered binary forced-choice card color guessing test. This test was suggested in a correspondence course on parapsychology in which the subject was enrolled in 1992. High scoring did not decline after the teacher (one of the authors, J.G.) stressed the importance of measures to prevent sensory leakage.

Appreciating the relevance of the home context in which these strong results were obtained, the following procedure was designed to leave intact the circumstances in which A.K. performed well. The few precautions that were taken were justified by telling A.K. that these would protect him from accusations afterwards (in case of significant results!). Furthermore he was told that the experiment would resemble the card guessing test he knew, and that he would receive written instructions.

Procedure

Each of 4 sets of 100 new playing cards, 50 red and 50 black, were randomised by shuffling numbers from 1 to 100. Even numbers resulted in red and odd numbers in black cards. The cards were shuffled to match the arrangement determined by the output of a hardware Random Number Generator. The 4 sets, named A, B, C and D, were prepared and split up into 10 packs of 10 cards each, by an assistant who was not aware of the intended use of the cards. The 40 resulting packs of 10 cards were put into opaque bags. These bags were taped as taut as possible. Next, the 40 bags were sealed and put into 40 Loksure security bags (a Loksure security bag can be identified by its unique number and cannot be opened without destroying it - Delanoy et al, 1993).

The experimenter (J.G.) delivered the packs to A.K.'s home. In a written instruction handed to A.K. it was stressed that he could do the series at his leisure. It was also suggested to keep a diary of his activities as he completed the series.

He was informed that he had to try to guess the colors of each card in a pack down through, while holding the Loksure pack with its series number up. Unknown to A.K., the cards from set 4 (D) were in fact kept at the Parapsychology Institute. Instead, A.K. received packs with dummy-cards (100 jokers). The pack D at the institute was prepared like the packs A, B and C, and was locked up.

We also provided A.K. with a scoring form similar to the self-devised form he had used in the correspondence course (see fig.1 in Bierman & Gerding, 1992). It was explained to him that, due to a theory-relevant requirement of the experiment, he would receive feedback at a later time on only three of the four packs. He of course was kept blind as to the identity of the set on which no feedback was given.

Apart from the 4 controlled sets (A, B, C, D), A.K. received another 4 sets (the sets a, b, c and d, each also containing 10 packs of 10 cards). These 40 opaque sealed bags were not put in Loksure bags. He was allowed to open these series immediately after he had finished the 100 calls for a set. These uncontrolled series served as a sort of reassurance for A.K., since here he would receive the immediate feedback he was familiar with during his former self-administered series (feedback of the controlled A, B, C, D series was expected to take days or even weeks because the score forms and packs were collected after ALL series were completed).

Therefore, before starting a run of 10 calls, A.K. had the opportunity to choose between direct feedback sets (a, b, c, d) in sealed bags and delayed or no feedback sets (A, B, C, D) in Loksure bags.

For the direct feedback series, there was no control whatsoever against cheating. If he chose to do so, the subject could first open the bags and then enter his guesses on the scoring sheet according to the card order he found in the packs.

After completion of the eight series, we collected the bags and scoring lists. The following day the identity numbers on the Loksure bags were checked and we took the sealed envelopes out of the Loksure bags. We photocopied the scoring lists and put them in envelopes. The envelopes with the scoring lists were then returned to A.K., together with the sealed packs. The subject was the first to observe feedback on his calls because the experimenters delayed checking the scoring lists against the card orders until the subject phoned to say that he had finished his checking[5].

Design and hypotheses

Before returning the packs to the subject for feedback, set B was opened and reshuffled, put in 10 opague envelopes and sealed like the other packs. The dummy cards of set D were replaced with the real cards kept at the Institute. Set A was left intact, while set C was not returned at all (as pointed out above, A.K. was informed beforehand that he would not receive feedback on one of the sets). Therefore, we have the following four conditions:

Table 1. Experimental conditions

Set	condition
A	correct feedback
B	incorrect feedback
C	no feedback
D	correct feedback (real pack D kept at a distance during call-phase).

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[5] As it turned out, A.K., counted in the controlled sets one hit less than the actual number of hits.

Possible theoretical explanations and corresponding hypothetical implications of this study were announced in advance (in Bierman & Gerding, 1992).

I. The traditional (second sight, third eye or sixth sense) psi model will be confirmed by significant hitting on all sets A, B, C and D. Hitting on A and C and not on B and D will fit the same model, however in this case fraudulent handling of the Loksure bags by sophisticated methods can not be excluded.

II. Significant hitting on A and D and not on B and C would conform to Observational Theoretical models (e.g. Millar, 1978), which stress the relevance of correct feedback. In this case a theory relevant result will have been obtained, while deception is quite improbable. Strong support for the Observational Theoretical models will be obtained if A.K.'s B-list is significantly correlated to the *incorrect* feedback.

III. Hitting on A, B (B is the real set during guessing, on which incorrect feedback was given) and C, and not on D (the joker set) could suggest cheating.

Results

The raw results are given in appendix 1, and more details are to be found in the electronical Journal of Anomalous Phenomena (eJAP)<www.psy.uva.nl/eJAP>.

In table 2 the results are given of the controlled series.

Table 2

Series of 100 binary guesses	Feedback Condition	Deviation	z
A	correct feedback	+ 10	1.9
B	incorrect feedback	- 4	-.7
C	no feedback	+ 1	0.2
D	correct feedback	+ 6	1.1
A+B+C+D		+ 13	1.2
A+D		+ 16	2.2

Interpretations:

1. The traditional psi model is not confirmed because that would imply significant hitting on all sets A, B, C and D, which was not the case.

2. In the case of fraud one would expect hitting on A, B (the original set B, before it was reshuffled) and C, together with chance results on (reshuffled) B and D (distance pack during call phase). The fact that no positive deviation is obtained in the condition where no feedback is given while the target cards were present with the subject (original pack B and pack C) indicates that the subject did not try or did not succeed to break into the Loksure bags.

3. The total deviation for the conditions (A+D) in which correct delayed feedback is given is +16 (z=2.19, p < 0.0143 one tailed). This supports the observational model which predicts that correct feedback is essential for psi to occur. The deviation for the set on which the subject got incorrect feedback is -4. It should be mentioned that when the calls of the subject were compared with the pack B he had in his hands during guessing, there is neither a positive deviation (-2). It should be remembered that A.K. had no prior knowledge of the identity of the set on which he would receive no feedback.

In table 3 the results are given of the uncontrolled series.

Table 3

Series of 100 binary guesses	Feedback Condition	Deviation	z
a	direct feedback	+ 10	1.9
b	direct feedback	+ 10	1.9
c	direct feedback	+ 21	4.1
d	direct feedback	+ 16	3.1
a+b+c+d		+ 57	5.6

The scoring rates on the sets (a,b,c and d) on which the subject opened the unprotected bags and got feedback immediately after finishing a set are spectacular (over all z= 5.65, p<0.00001) and in the same range as those reported by A.K. for his earlier uncontrolled sessions.

Discussion
The present experiment was designed to explore the idea that hidden theory-based manipulations could be used as a control against normal explanations of apparent anomalous outcomes of psi experiments. In that respect the experiment succeeded.
Furthermore, it was hoped that a gifted subject, working in his own home environment with no experimenter present, would succeed to produce effects of a magnitude comparable to those obtained under completely uncontrolled conditions, i.e., effects that are much stronger than those that are generally observed in the rather artificial environment of the laboratory.
In that respect the experiment failed because the effect size of ~ 0.15 obtained for the delayed correct feedback conditions, though somewhat larger than the mean effect size of ~ 0.04 reported for forced choice lab experiments (Honorton & Ferrari, 1989), is much smaller than the effect size of at least to this subject when he has worked in a non-controlled setting.

Although in the controlled condition psi apparently occurred and although the overall pattern in the data strongly suggest that there was no cheating, some might interpret the discrepancy between controlled and uncontrolled conditions as the result of cheating in the uncontrolled condition by A.K. However an alternative explanation that suggests itself might be that the lower effect size is due to the delay in feedback, for, athough feedback for the a, b, c, d, sets was immediate, feedback for A, B, C, D, took three weeks to reach A.K..

Such an explanation would be in accordance with the smaller effect sizes obtained in meta-analysis of precognition experiments as compared to clairvoyance experiments, for here too the main difference between the precognition and clairvoyance conditions lies in the delayed feedback in the latter case.

This explanation is also in accordance with some outcomes of recent research. In a modified Ganzfeld procedure the subject gets feedback of the target picture immediately after mentation, while staying in the state of consciousness of his mentation. The results were better (43,75%) than the expected effect size (33%) (Wezelman et al, 1996).

If delay in feedback is an important variable then one would expect that within the sets of 10 packs with direct feedback, at the end of completing the set performance on the last few packs would be better than performance on the very first packs because the latter were farther away from the feedback moment. A.K. always did one series at a time in one effort. Indeed, as can be seen from appendix 1, there is an incline in scoring across a set with the first 5 packs of sets a,b,c, and d, resulting in a deviation of +16 while the last 5 packs of these sets resulted in a total deviation of +41 (two sample t = 2.14, df=38, $p < 0.05$). The incline in itself seems not to fit in any normal explanation of the results in the uncontrolled condition. A similar incline is not visible in the over-all scoring on the delayed feedback condition sets A, B, C, and D. However if one considers set A and D, for which the correct feedback was actually given, there is also a suggestive incline in deviations from the first half to the second half of the sets (+5 and +11 respectively).

The different results between direct and delayed feedback can also be related to a psychological variable. A.K. could decide whether he took a direct-feedback set or a delayed-feedback set. The latter, obviously more important because of the fraud-proof Loksure envelope, can have had a restraining influence. A loksure set could also be chosen in a less psi-sensitive mood, because A.K. knew he would get delayed feedback. A direct-feedback set, although allowing fraud, could have been chosen in an eager psi-favourable mood.

This experiment was explorative. We are working out a procedure in which A.K. stays in his home environment with no experimenter present, in which all calls are fraud-proof and yet enable us to manipulate feedback conditions.

Acknowledgement

Appendix 1: Raw results

Date (Calls)	Time	FB-Cond.	Number of HITS (each cell concerns 10 binary guesses)										Dev	z
			R1	R2	R3	R4	R5	R6	R7	R8	R9	R10		
23-04	16:45	A: correct	3	8	8	4	7	8	5	8	4	5	+10	1.9
3-05	11:17	B: incorrect	5	4	5	6	3	5	3	4	5	6	- 4	-.7
4-05	10:32	C: none	5	7	8	3	4	4	6	5	4	5	+ 1	0 .2
3-05	12:13	D: correct	8	4	4	5	4	6	7	6	6	6	+ 6	1.1
		A+B+C+D	21	23	25	18	18	23	20	23	19	22	+13	1.2
		A+D	11	12	12	9	11	14	11	14	10	11	+16	2.2
4-05	12:00	a: direct	7	3	7	7	6	7	6	5	6	6	+ 10	1.9
4-05	13:02	b: direct	6	6	5	2	8	6	7	5	6	9	+ 10	1.9
4-05	12:22	c: direct	3	10	6	8	7	8	3	9	8	9	+ 21	4.1
4-05	11:18	d: direct	6	4	3	6	6	8	7	10	8	8	+ 16	3.1
		a+b+c+d	22	23	21	23	27	29	23	29	28	32	+57	5.6

References

Bierman, D.J., (1979) A Methodological hint for Research in RSPK Cases. *European Journal of Parapsychology* 1979, **3-1**, 111.

Bierman, D.L. (1981) Open Letter to Julian Isaacs. *Journal of the Society for Psychical Research*, **51**-789, pp. 183-184.

Bierman, D.J., (1991) A method to fraudulently produce effects in a conceptual replication of the Schmidt-Morris-Rudolph retro-PK by the SRU (Eindhoven) and the Dutch sceptical community (Skepsis) was communicated by letter of May 17, 1991 to R. Nanninga of Skepsis. The method was based upon a date-sensitive computer virus.

Bierman, D.J., Gerding, J.L.F., (1992). Towards a reduction of experimenter control in the study of special subjects. *The Parapsychological Association 35 th Annual Convention. Proceedings of Presented Papers*.

Delanoy, D.L., Watt, C.A., Morris, R.L. & Wiseman, R. (1993) A New Methodology for Free-Response ESP Testing Outwith the Laboratory: Findings from Experienced

Participants. In: Proceedings of the 36th Parpapsychological Convention, Toronto, aug. 1993. pp.204-221.

Honorton, C. & Ferrari, D. C. (1989), "Future Telling": A meta analysis of forced-choice precognition experiments, 1935-1987. *Journal of Parapsychology*, **53**, pp. 281-308.

Morris, R.L. (1978) A Survey of Methods and Issues in ESP Research. In: S. Krippner , *Advances in Parapsychology*, Plenum Press, New York 1978

Morris, R.L. (1986). What Psi is Not: The Necessity for Experiments. In: Edge, H.L., Morris, R.L., Palmer, J. & Rush, J.H. (1986). *Foundations of Parapsychology*. Boston: Routledge and Kegan Paul.

Millar, B. (1978) The Observational Theories: A Primer. *European Journal of Parapsychology* 1978, **2-3**, 304-332.

Palmer, J. (1978) Extra Sensory Perception: Research Findings. In: S. Krippner , *Advances in Parapsychology*, Plenum Press, New York 1978

Schmidt, H., Morris, R., Rudolph, L. (1986) Channeling Evidence for a PK Effect to Independent Observers. *Journal of Parapsychology*, 50, 1-17.

Wezelman, R., Gerding, J.L.F.& Verhoeven, I. (1996). Eigensender Ganzfeld Psi: An Experiment in practical Philosophy, *eJAP*, **96.2**, (http://www.psy.uva.nl/eJAP).