A test on possible implications of the OT's for Ganzfeld research[1]

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Abstract

In a 16-trial Ganzfeld experiment the hypothesis was tested that subjects not only mention elements of the target-picture but also of other pictures of the target set as can be predicted on the basis of the Observational Theories. There were 8 trials with and 8 trials without a 'sender'. The direct hit rate of the Ss was 37.5 % (N=16, MCE=25%, $p < 0.19$) while the independent judges matched 50% of the protocols correctly with the targetpicture (N=16, MCE=25%, $p < 0.03$). The judges identified in 62.5% the correct target set if they had to choose between the actual target set and a randomly selected control set. (N=16, MCE=50%, $p < 0.23$). The correct identification rate of the target set, when the targetpicture was judged to be a binary miss was 83% (N=6, MCE=50%, $p < 0.11$). This result is only suggestive for the main hypothesis of psi on the whole set. Two **planned** explorations were done. Subjects that showed time-contraction in the time reproduction test tend to score better (77%, MCE=25%, $p < 0.004$) than those subjects who showed no time contraction (17%) ($Chi2=72,26$, $df=1$, $p < 0.059$). Secondly the time was measured between the end of the Ganzfeld stimulation and the moment of feedback of actual target. No relation was found between this time lapse and psi performance.

1.Introduction

Anecdotal evidence suggests that the mentation of subjects produced during the Ganzfeld might not only correspond to the targetpicture, but often contains elements of other pictures from the target set (Sondow, 1987). In one published Ganzfeld experiment weak post-hoc evidence was found suggestive for this phenomenon (Palmer et al, 1977). The fact that elements of the total target set are thought to be present in the mentation might be understood in terms of the Observational Theories (OT's). According to these theories GESP trials consist of two distinct processes: a) The partly random processes in the brain

[1] The experimental set-up and the design of this experiment were submitted to the editors of the European Journal of Parapsychology before the experiment took place thus avoiding post-hoc data and hypothesis-massage (see appendix I).

which result in the mentation of the subject and b) the observation of the (meaning of) the result, i.e. the feedback of the targetpicture to the subject. The random brain processes are supposed to be biased contingent on the future observation.
What exactly constitutes an observation is still a question open to research (Weiner & Bierman, 1982). One could argue that the judging procedure where the target set is presented to the subject is a partial observation. The space of possible targets which, as far as the subject is concerned, is unlimited until the judging procedure starts is suddenly reduced to only 4 possibilities. If this interpretation is correct it appears that it is consistent with the OT's to suppose a bias of the mentation report contingent upon the target set as a whole. When feedback of the real target occurs a second possibility of 'retroactive' biasing of the brain states during mentation arises, this time contingent on the targetpicture itself.

The present experiment has been set up to test empirically the hitherto mostly anecdotal evidence of psi on the target set rather than on the targetpicture. The above sketched 2-step model of GESP is also the background for the exploration of the time lapse between the end of the GANZFELD stimulation and the start of the judging/feedback procedure. The underlying idea is that, although it may be argued that the state of consciousness produced by GANZFELD is optimal with respect to the random brain processes it is not clear at all what state of consciousness might be optimal for the feedback part of the psi-process. Only one experiment has explicitly explored this question (v.d. Sijde et al, 1982) by direct manipulation of the state of consciousness right before feedback. Since in that experiment no evidence for psi was found, no conclusion could be drawn with regard to this manipulation. In the present experiment the state of consciousness is not manipulated but it is assumed that after finishing the Ganzfeld the subject recovers in continuous fashion to a normal waking state. Thus the larger the time lapse before feedback, the more normal the state would be on the moment of feedback.
It has been found (Schmeidler, 1982) that self-claimed psychics differ hardly from comparable control groups except for 1 trait, the time contraction trait. This trait appears to relate to dissociative states. After the Ganzfeld-stimulation ended but before feedback, subjects were given the time reproduction test in which they had to reproduce a time lapse of 10 seconds which was indicated by the experimenter knocking twice on a table. In our test the Subjects were asked to do this 4 times in a row. If they have a perfect reproduction ability this would have resulted in a time of 40 seconds. Subjects who scored below the median were labeled as time contractors.

2. Experimental set-up

2.1 Experimenters

6 students of the regular Parapsychology course at the University of Amsterdam performed the role of experimenters in this experiment. To raise their interest and motivation they were asked to formulate a hypothesis of their own. A differential effect between trials with and trials without a 'sender' was predicted by these students. It should be stressed that this prediction was not made (nor supported) by the present author who supervised the experiment. There was no formal hypothesis concerning this effect included in the list of hypotheses submitted to the editor of the EJP (appendix I) before the experiment and thus no analysis pertaining to this condition will be reported here.

2.2 Subjects

As subjects volunteered 16 freshmen of the dept. of Psychology. The subjects were generally unknown to the Experimenters. Ad-hoc combinations of 2 experimenters out of 6 were made for each subject in order to reduce the workload of the Experimenters. Each experimenter therefore participated in only about 6 sessions.There were no more than 2 sessions per day.

2.3. Procedure

The procedure did not differ considerably from the generally accepted Ganzfeld-type experiments. Most recommendations given by Hyman and Honorton (Hyman & Honorton, 1986) were taken into account. Thus a two-experimenters protocol was adhered to and duplicate target sets were used for judging. Apart from these measures it was secured that all target-sets in the experiment had never been observed by the Experimenters nor by the current author. **They were used only once**. Randomization was done by the current author using a thoroughly tested RNG-II (Bierman, 1987) connected to a MacIntosh computer. Before each session the second experimenter selected the duplicate set according to the random set number and left this set in the subjects room. The subject-bound (first) experimenter received the subject and went straight to the subjects room and did not leave this room before the subject had indicated the final choice. The second experimenter, who went in the meanwhile into the 'senders' room, would select an envelope containing the target-picture according to the random number produced by the RNG. This experimenter-agent would only open the envelope, at the moment that GANZFELD-stimulation in the other room started, if a second random number indicated the trial was a Telepathy-condition

trial. Otherwise the target-picture was left on the table in its own envelope. The experimenter-agent who was the only one who could be aware of the target (in case of telepathy-trial) stayed in the 'senders' room until subject's judging was over.
Judging was done by laying the duplicate pictures on a table in the order in which they were in the envelope (this order was unrelated to the targetnumber since the sets had been prepared elsewhere). After the indication of the Subjects choice on the scoring sheet the second experimenter would bring in the actual targetpicture.
Multiple Analyses were prevented by submission of the planned analyses to the EJP before the experiment started.[2]
In contrast to general accepted methodology no ping-pong balls were used but instead a large opale plexiglas hemisphere with a diameter of 50 cm. was placed over the subject face and illuminated with red light. This method for Ganzfeld stimulation has been used with great succes in physiological experiments (Lethonen and Lethinen, 1972).

2.4.Judging procedure by independent judges

Judges were volunteers generally picked up from the lab-canteen. The two sets (Target and control) + the relevant subject protocol were laid down in the judging room before the judge entered the room. First the judge had to choose a set considering the set as a whole. Then the control set was removed and it was explained that the judging concerned a Ganzfeld experiment with a single targetpicture. Then they had to indicate the targetpicture from the target set. In order to keep the procedure not too complex the experimenter which handled the judge was not blind vis a vis the targetpicture-number. Thus non-verbal sensory leakage was not completely excluded. However since the current author was, unknowingly to this experimenter, interested mostly in the set-judging **in the cases that the target was missed** this was not considered to be a major problem .

3.Results

3.1 Primary hypothesis

In table I the over-all results are presented in a condensed form[3]

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[2] It should be remarked here that on the original submission the indicated dependent measure was Sum of Ranks. However when visiting with Honorton, he strongly advised to use the Direct hit count instead. And it was decided to do so **before** the experiment was over and any result was known to this author.

[3] see appendix II for detailed results.

	# trials	#direct hits	MCE	rate	p-value(o.t)
Subjects	16	6	4	37.5%	0.19
Judges	16	8	4	50%	0.03

Table I

Subject's and Judge's over-all direct-hits

It can be concluded that there are marginal indications that psi was functioning in the present experiment. The subjects scoring rate is very close to the estimated true effect size of 33% (Rosenthal, 1986) and thus forms a replication of previous Ganzfeld experiments.
However our main hypothesis does not concern the evidence for psi as indicated by anomolous information transfer concerning the target picture but the amount of information transfer from the target set as a whole. In table II the scoring of the judges is given when they had to choose between the target-set and a control set on the basis of the protocol of the subject. The results are split for cases where the judge ranked the target first or second (this is generally called a binary hit) or did rank the target third or fourth.

	# trials	#hits	MCE	rate	p-value (o.t)
high ranks(binary miss)	6	5	3	83%	0.11
low ranks(binary hit)	10	5	5	50%	0.5
Total	16	10	8	62.5	0.23

Table II

Setscoring

As can be seen from the table judges did correctly identify the target set in 62.5% (n.s.) of the cases. However the correct set also contains information which is in the targetpicture. Thus it can not be decided whether this slight above chance selection is due to the whole set or the targetpicture. We could have removed the targetpicture in order to decide so. Instead we decided to analyse separately those sets where that targetpicture was not ranked as a binary hit and thus supposedly could not contribute the majority of information to the set. It can be seen that for these cases the judges identify 83% of the sets correctly. This result, a larger effect size for correct set-identification, is consistent with our hypothesis that the

protocol of the subjects contains information pertaining to the target-set as a whole especially in the case of a binary miss. However it should be stressed that the result is statistically non-significant.

3.2 Secondary planned analyses

Table III gives the judge data split for subjects who showed time contraction in the time-reproduction task and subjects who did not[4].

[4] Ss who scored below the median were considered to be time contracters.

	#Subjects	#hits	MCE	rate	p-value
Contracters	10	7	2.5	77%	0.004
Others	6	1	1.5	17%	0.82

Table III

Direct scoring as a function of the time perception of the Ss

The corresponding chi-2 value is 72.26 (df=1, $p < 0.059$). It can be concluded that those subjects who tended to contract the time scored significantly better that those who did not.

The second planned analyses is given in table IV.

	#Subjects	#hits	MCE	rate	p-value
Short timespan	11	5	2.25	45%	0.11
Large timespan	5	3	1.25	60%	0.10

Table IV

Direct scoring as a function of time between end of GF and feedback

The corresponding Chi-2 value is non-significant.

4. Conclusions

It appears that in the present study psi occurred marginally. The hypothesized information transfer from the set as a whole could not be demonstrated to a statistically satisfactory level. The analysis pertaining to this effect was based upon only 6 trials. Thus the power was really low. The analysis can however be applied to any properly kept old Ganzfeld-database and since the result might be interpreted in the framework of the OT's, maybe suggesting the relevance of concepts like 'partial observation', such analyses seem to be worthwhile.

The increase in scoring rate for subjects that got their feedback after a longer time delay (from the end of the Ganzfeld stimulation) might be a real effect but it is not necessarely related to the state of consciousness on the time of feedback. The timespan between end of Ganzfeld and feedback is strongly related with the amount of mentation and the effort that the experimenter spends to elaborate on this information. Thus this effect, if real, might also be correlated to amount of imagery.

Finally the scoring rate of 77% (MCE=25%) for the subjects who showed time contraction is larger than any known scoring rate of a group selected on the basis of a single measure. It suggests strongly that this measure is a relevant personality trait. It should be remarked this predicted finding nicely agrees with earlier studies (Stanford et al, 1974; Palmer et al, 1977) which used a different measure and also found a positive relation between time-contraction and scoring rate.

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Appendix I

Literal transcription of the description of the experiment submitted to the editors of the EJP in may-1987.

A test on possible implications of the OT's
for Ganzfeld research

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NB. All recomendations by Hyman and Honorton (JoP 50-1, 1987, in Press) are taken into account.

Procedure
- standard GF (using a large field)
- 15' relaxation before GF
- double-blind

Material
- 32 sets of 4 pictures with duplicate pool for judging
  (sets are prepared elsewhere and unknown to E's)

Subjects
- 16 volunteers, freshman Psychology

Randomization
- List produced by thoroughly tested hardware RNG
- Once used target set is never used again!

Independent Variables
- TC: time contraction trait of Subject
- MFB: moment of feedback, minutes after end of 'noise'
- TEL/CLV: sender condition

Dependent Variables
- SRss: Sum of ranks of targets (subjectscores)
- BHjd: Binary hits of judges **comparing sets!**
- SRjd: Sum of ranks of targets (judges scores)

Hypotheses
- SRss > 16 * 2.5 to be tested in standard SoR way
- BHjd > 8 t-test
- SRjd > 16 * 2.5
- Scores are dependent on MFB.