

PROCESS ORIENTED GANZFELD RESEARCH IN AMSTERDAM
Series IV B (1995): Emotionality of Target material,
Series V (1996) and Series VI (1997): Judging Procedure and Altered States
of Consciousness.

Rens Wezelman - Parapsychology Institute, Utrecht
Dick J. Bierman - University of Amsterdam & University Utrecht

ABSTRACT

Three series of 32, 40 and 59 Ganzfeld sessions respectively are reported. In the first series (IV B, 1995b), the hit-rate was 15.6% which constitutes a remarkable decline with respect to the previously reported first part of that series. Still, the hit-rate on emotional target material was 31% which replicates the earlier findings of superior scoring on emotional targets. In the formal part of the second and third series, subjects did two sessions, one under the influence of cannabis and one with no special treatment. The judging procedure in these series was also manipulated. In half of the sessions of series V, judging was done by an independent judge, while the subject got feedback on the target without ever seeing the decoy pictures in the total target set. In the other half, judging was done by the subject in accord with the standard Ganzfeld protocol. In series VI the judging in half of the sessions was done by the external judge *alone* as in series V but in the other half the external judge was judging too after the subject had judged. The combined results of these two series showed a suggestive difference between the scoring rates (30 % in the cannabis condition vs. 15% in the untreated condition). In the third series, two more altered state conditions were explored. In the first, experienced meditators meditated before receiving Ganzfeld stimulation. Hit-rate in these sessions was 14,3%. Furthermore, 6 sessions were done in which two subjects simultaneously went through the Ganzfeld procedure after a psilocybine treatment. Hit-rate of the subjects in this latter condition was 58.3%.

INTRODUCTION

At the University of Amsterdam, psychology students have to run a student research project as a part of their training. In the years 1982 and 1986, two student projects (called Amsterdam I and II) used a Ganzfeld paradigm (Bierman, 1983 and 1987). For some years after that the atmosphere at the faculty was not supportive of this type of research and students tended to avoid the subject.

However, the publication of the Bem-Honorton paper (Bem & Honorton, 1994) and the subsequent public meeting during which Bem appeared on video via Internet, did drastically change the general attitude. As a direct consequence, four student research projects were run between the years 1994 and 1997, all of them

using the auto Ganzfeld paradigm. To counter the sound leakage hypothesis, no 'sender' was used in these projects (i.e. there were only clairvoyance & precognition conditions).

Following is a discussion of the variables that were studied in these projects.

EMOTIONALITY OF THE TARGET MATERIAL

Reported spontaneous cases of psi phenomena generally concern emotional events. Therefore there is a general belief that psi phenomena may be stronger if the material to which the phenomena pertain is more emotional. However this belief can not be based upon the field reports because unsolicited reports are strongly biased. Therefore only experimental research is able to enlighten the role of the emotionality of events in psi phenomena. In order to assess this role in controlled free response studies, we introduced this type of material in a formal way in the Ganzfeld paradigm.

Psychological research suggests that subliminal priming has the largest effect if the prime is of an emotional nature (Murphy & Zajonc, 1993). Of course it is very speculative to extrapolate this finding to primes with a stimulus duration of nil. Recent studies of the Presentiment effect suggest however (Bierman & Radin, 1997), that the superiority of subliminal over supraliminal emotional elicitation holds even in a precognition condition. Apart from that, there is an additional advantage in that embedding Ganzfeld series in regular psychological framework such as Murphy & Zajonc's helps the student-experimenters to feel comfortable with the project.

As part of the research project on emotionality of target material, series III and IV A have already been published in Bierman, 1995. In this article, we present series IV B, V and VI, and a summary of the total Amsterdam results on the effect of target emotionality.

ALTERED STATES OF CONSCIOUSNESS

Another aspect revealed by superficial analysis of reported spontaneous cases, is the relative high incidence in these reports of altered states of consciousness (ASC's).

Recently, very little systematic research has been done on the effect of drug induced ASC's on psi performance. The Amsterdam Ganzfeld series V and VI explored the idea that cannabis interference and inhibition of the short term memory system (as for example indicated by Miller, 1976) might increase the level of 'spontaneity' of subject's impressions during Ganzfeld stimulation, since these impressions would be less restricted by ongoing, more or less sequential and coherent cognitive processes. Apart from that, cannabis treatment might also be expected to make the subject less inhibited and ready to express these impressions.

In series VI, two more altered state manipulations were introduced. In the first, experienced meditators meditated before receiving Ganzfeld stimulation. Furthermore, 6 sessions were done in which two subjects simultaneously went through the Ganzfeld procedure after a psilocybine treatment. Behind this manipulation lies the idea that psilocybine is known to increase the experience of 'empathy' and connectedness to others, an idea which, if true, might in Ganzfeld sessions with two subjects be reflected in a higher than average correspondence between their protocol elements. Judges in these exploratory sessions would be instructed to give special target relevance to these overlapping elements.

JUDGING PROCEDURE

In the standard Ganzfeld judging procedure, the subject is presented with all four target alternatives. This excess of feedback might, from an observational theorist's point of view, 'cause' elements of several target alternatives to pop up in the protocol, thereby creating a 'psi-noise' confusion during the judging procedure. There has been some marginal evidence for this so-called set-effect (Bierman, 1987).

In series V and VI, the judging procedure was manipulated to explore the probability of such an effect. In half of the sessions of series V, judging was done by an independent judge, while the subject got feedback on the target without ever seeing the decoy pictures in the total target set. In the other half, judging was done by the subject in accord with the standard Ganzfeld protocol. In series VI the judging in half of the sessions was done by the external judge *alone* as in series V but in the other half the external judge was judging too after the subject had judged. The latter manipulation should be seen as a first exploration of multiple observation in terms of the Observational Theories.

SERIES IV B METHOD

EXPERIMENTERS AND PARTICIPANTS

The experimenters were 2 psychology students (1 male and 1 female) who had selected the Ganzfeld project out of a number of possible training projects and were themselves selected from series IV A, being the most successful experimenters in that series. The second author served as supervisor to the project.

A puzzling outcome of the Amsterdam series III (Bierman, 1995) was the non-replication of the openness effect which was established in the Utrecht Ganzfeld novice series (van Kampen et al, 1994). It was suggested that the fact that experimenters ran their own friends may have favoured a natural openness, in which even the relatively more closed participants had felt free to express their experiences. It was decided that in a future series subjects should be run by non intimate experimenters. In series IV B therefore, participants were 32 self-enlisted students (who have to participate in faculty experiments as part of their study).

TARGET MATERIAL

Preceding series IV (A and) B, 15 judges rated thirteen 30 second clips on an emotionality scale (these judges did not subsequently take part in the experiment). From this data, the two most positive, the two most negative and the two most neutral targets were selected to be used in the actual experiments. Furthermore, this manipulation was checked afterwards by getting an emotionality score from the actual participants on the targets in the judging set.

The following clips were selected as a consequence of this procedure.

- Positive:* the HORSE clip, a TV commercial showing a HORSE which breaks free from a span of horses, and a BEATLES clip.
- Negative:* the TIDAL WAVE clip of setnr. 20 of the PRL Ganzfeld study, and the KENNEDY assassination (containing the fatal moment from the Zapruder film which was not shown in series IV A).
- Neutral:* a fragment of TRAFFIC, the LOTTO balls. Both neutral clips were very dynamic in physical terms (lots of movement) but hardly carried any emotion nor meaning (nor change in meaning).

The 30 second clips were transferred to hard disk of the experimental computer in QT II format, which resulted in improved image quality.

DEPENDENT VARIABLES

The two dependent variables were planned in advance. First, the main dependent variable in this study is the psi performance, operationalized as the direct hit score.

Further, it was decided to use the first 'intuitive' guess of the participant as a formal dependent variable in an exploratory analysis. This variable was expected to correlate highly with the final, ratings based response. It would therefore not be used in other analyses, because correction for multiple analyses would be required which would lower the power of the experiment.

INDEPENDENT VARIABLES

In series IV B, the main independent variable was emotionality of the target, with two conditions: Neutral (N) and Emotional (E).

Previous studies had identified openness of the participant as an important factor correlating with psi performance (Van Kampen, 1994). In series IV B the openness variable is operationalized using the openness scale of the Dutch version of the NEO-PI (48 items, 8 items for each facet). The questionnaire was filled in at the introductory meeting, a week before the participants came to the experimental session.

PROCEDURE

The procedure that was followed in IV B and in studies V and VI was nearly identical and conformed globally to the procedure as followed in the PRL Auto Ganzfeld series (Honorton et al, 1990). The most significant deviations from the PRL protocol were due to the fact that there was no 'sender' in these series, and that all targets were stored in the computer. These adaptations allowed us to follow a single experimenter protocol. (However, a disadvantage as compared to the PRL target pool lies in the non-orthogonal construction of our clip sets. It is impossible to give a post factum assessment of the effect that this ideosyncratic construction might have caused on judging and results.)

A lot of attention was paid to making the participants feel comfortable. They were invited to an informal introduction meeting, where they were welcomed with cookies and tea. The background of the experiment and the general procedure were explained and there was plenty of time for questions.

The actual sessions started about a week later in the basement of the faculty of psychology of the University of Amsterdam. Since the two experimental rooms were not soundproof, it could not be avoided that environmental noise (like that caused by traffic) was sometimes heard by the subject even when the white noise was playing on his/her earphones.

The computer controlling the experiment was situated in the subject's room at a distance of about 2 metres. After the experimenter had installed the participant with ping pongball halves and earphones in a reclining chair and had adjusted the white noise generator to a pleasant volume, the computer program was started and a metal cap was placed over the monitor. Further precautions against cheating were not taken because subjects were hooked up to the audiosystem. The experimenter then retreated to the experimenter room and started the 11-minute relaxation tape. Meanwhile, the computer program just paused. After the relaxation tape had ended, white noise was introduced to the earphones of the subject for 30 minutes.

From series III it was concluded that there remained at least a theoretical possibility that the presentation of the targets during the Ganzfeld session on the screen of the video display could cause some auditory cues. First, hard disk head movements might have caused some specific auditory patterns. Of course the participant's white noise was orders of magnitude louder than this disk originated noise, but even a signal to noise ratio of -60 dB may not be enough to convince sceptics (although they would have a hard time to explain the higher scoring rates on emotional target material that resulted from series III and IV A). Secondly, it might have been the case that the display produced some ultrasonic beep tones which might have been different for different targets. To counter this alternative explanation, 50% of the trials of series IV B were in the normal 'clairvoyance' condition while the other half was in a 'precognition' condition in which there was no target selection until after the judging (and of course no display of the target during the Ganzfeld stimulation). The experimenters were kept blind to the condition.

The Ganzfeld stimulation underway, the experimenter started making notes of the mentation of the participant. In the clairvoyance condition, after 10 minutes the computer randomly selected one of the 6 target alternatives and during the remaining 20 minutes played back this video 4 times with the audio channel switched to 'off'. In the precognition condition the target was not selected until the judging was over and the ratings were entered into the computer.

At the end of the Ganzfeld period the experimenter returned to the participant room and takes off ping pongball halves and earphones. While the participant remained seated in the reclining chair, the computer showed 4 video clips in random order with audio 'on'. The participant was then asked to give his/her first guess. After that, the experimenter went step by step through the mentation report, and a final judgement was entered into the computer as a rating between 1 and 40 for each of the 4 video clips. Next, the subject had to rate the emotionality of the 4 clips, and only after these values were entered, the computer showed the target clip which ended the session.

HYPOTHESES

As stated in Bierman (1995), hypotheses for the total of series IV were the following:

- I:** There will be an over-all direct hit rate which is significantly above chance. This hypothesis will be tested by calculating the continuity corrected z-score.
- II:** The hit rate in the sessions where an emotional (E) video clip is target will be significantly higher than the sessions with a neutral (N) target. The hypothesis will have to be tested by a 4 cell chi-square with hits/misses and emotional/neutral as factors. This analysis will take into account possible response biases.
- III:** The average openness score for participants with a hit is larger than the average openness score of participants with a miss.
- IV:** Open participants do score better on emotional and closed participants do score better on neutral targets. This hypothesis will be tested by an ANOVA using the openness score as dependent variable and hit/miss and Emotion/Neutral as factors.
- V:** Intuitive (first impression) scoring will be better than the cognitive based final scoring. To be tested by a chi-square.

RESULTS SERIES IV B

EMOTIONALITY OF TARGETS

The same sets that were used and evaluated in the first part of the series IV were also used in the second part with one minor modification in the Kennedy assassination clip. A t-test between participant's emotionality ratings of neutral and emotional target clips had shown that the emotionality manipulation was successful ($t(34) = 3.89$; $p < 0.0004$).

DISTRIBUTION OF TARGETS

Table 1 gives the number of times that a specific clip has been selected as a target clip. Due to computer failure, the selection of individual targets was more unbalanced than was planned - the objective was to have a frequency of 5 or 6 for each clip.

As can be seen in table 1, in 12 cases a neutral clip and in 20 cases an emotional clip was chosen as target.

Table 1: Distribution of targets in series IV B

E+: BEATLES	5
E+: HORSE	4
E-: KENNEDY	6
E-: TIDAL WAVE	5
Total Emotional	20
N: TRAFFIC	4
N: LOTTO	8
Total Neutral	12

Table 2 gives the raw scores in terms of responses made by the participants. In this series one would expect twice as much responses for neutral targets as for emotional targets because on the average the judging set contains not as many neutral targets as emotional but there are twice as much emotional targets in the judging set which are composed by randomly selecting 4 out of 6 clips.

Table 2

clip	no. choices	no. hits	no. misses	% hits
N: TRAFFIC	3	1	2	33.3%
N: LOTTO	5	0	5	0.0%
N total	8	1	7	12.5%
E+: HORSE	8	1	7	12.5%
E+: BEATLES	2	0	2	0.0%
E-: TIDAL WAVE	11	2	9	18.2%
E-: KENNEDY	3	1	2	33.3
E total	24	4	20	16.7%
OVER-ALL	32	5	27	15.6%

Hypothesis I

From table 2 it follows that 5 hits occurred in 32 sessions (15.6%) of series IV B and therefore obviously the first hypothesis has to be rejected.

Taking IV A and B together, in 39 sessions (of a total of 68) the target clip was actually shown on the computer screen during the Ganzfeld stimulation. These 'clairvoyance' sessions yielded 11 hits (28%), as compared to 7 hits (24%) in the remaining 29 'precognition' sessions. Since the precognition and clairvoyance scores were not significantly different, they will be pooled as planned.

Hypothesis II

In series IV A combined with IV B, most hits are on emotional targets (31%) as compared to neutral ones (26.6%). Corrected for response bias however, the difference is not significant (Fisher's exact $p = .71$).

Of the total of 18 hits in series IV A and B combined, 14 hits resulted in sessions with an emotional clip and only 4 in neutral clip sessions. The direction of this difference is as expected, again however it is not significant.

Table 3 presents an overview for series III and IV combined. Chi² analysis indicates that over-all participants showed a better psi performance on emotional targets (31.5%) as compared to neutral targets

(25%), however this difference has dropped from a significant figure of the first reported part of study IV (Bierman, 1995) to a non-significant level ($\chi^2 = 1.24$, $df=1$, Fisher's exact $p = 0.29$).

Table 3

RESPONSE is	series nr.	Number of these responses	response was a hit	response was a miss	hits / N (%)
N: INDIAN	III (1994)	9	3	6	33.3%
N: MERMAID	III (1994)	11	3	8	27.3%
N: TRAFFIC	IV (1995)	11	4	7	36.4%
N: LOTTO	IV (1995)	9	0	9	0 %
N total		40	10	30	25%
E+: HORSE	III & IV	32	12	20	37.5%
E+: BEATLES	IV (1995)	6	1	5	16.7%
E-: DINGO	III (1994)	4	3	1	75%
E-: TIDAL WAVE	IV (1995)	17	6	11	35.3%
E-: KENNEDY	IV (1995)	9	2	7	22%
E total		68	24	44	35.3%
OVER-ALL		108	34	74	31.5 %

Hypothesis III

Taking series IV A and B combined, the mean openness scores for all the facets of the Openness scale of the NEO-PI were calculated for subjects with a hit and for subjects with a miss. The over-all openness score did not differ significantly for the two groups and although one of the facets, O4 (actions), showed a significant difference, the direction was opposite to the predicted one ($t = -2.33$, $p = 0.023$).

Hypothesis IV

From ANOVA for series IV A and B combined, with the raw NEO-PI openness-score as dependent and hit/miss and emotion/neutral as factors, it followed that F (interaction) = 0.416, $df = 2$, $p = .66$ n.s..

Exploratory hypothesis V

There were 6 instances where a participant changed his choice from the initial intuitive one to the final more cognitive one. Three hits were 'corrected' to 'misses', and three misses changed into hits. It seems therefore that there is no real difference between the two dependent measures (i.e. the more intuitive first choice and a more analytical final rating).

DISCUSSION OF SERIES IV B

The present results of series IV B are inconsistent with earlier series as far as the over-all psi performance is concerned. The only relevant procedural change in IV B as compared to the earlier series, lies in the selection of the participants: in IV B participants were self-enlisted students who have to participate in faculty experiments as part of their study. Clearly in such a situation participants are less interested in the

subject and less motivated to perform as compared to a situation in which the experimenters select participants among their friends.

Series IV B also confirmed the null finding in series III and IV A with regard to the relation between psi performance and openness of the participant. We have to point out that in the original analysis of the Utrecht Novices Ganzfeld series, where this relation was established, the questionnaire was administered a few months AFTER the Ganzfeld session while in the present series the questionnaire was administered BEFORE the Ganzfeld session. In principle the latter procedure is methodologically more sound although we feel that given the stability of the personality traits and the long interval between the tests the correlations found in the Utrecht series were not an artefact.

Not many people have noticed that the original strong correlations found by Honorton between scores on the MBTI and psi performance in the (manual) Ganzfeld, disappeared in his auto Ganzfeld series. Earlier (Bierman, 1995), we speculated that this could be the glimpse of a secondary type of decline effect. Taking the Utrecht data on openness as an indication of the effectiveness of an 'underlying mechanism' that can be 'applied' in further studies, might have been counter productive in the light of the system theoretical approach of Von Lucadou (1994), in which psi correlations, once well established, should tend to decline or even reverse if the design is such that we intend to 'use' them to enhance a 'signal'.

SERIES V AND VI METHOD

EXPERIMENTERS AND PARTICIPANTS

In both series V and VI, the experimenters were 5 psychology students who, as in IV B, had selected the Ganzfeld project out of a number of possible training projects.

In contrast to IV B, in series V and VI experimenters again ran their own friends as participants.

In series V a total of 20 subjects took part in two Ganzfeld sessions each. They were 10 males and 10 females, with a mean age of 25 years (sd 3.5).

In series VI, 39 subjects took part, varying in age between 20 and 50 years. In the formal part of the study, 20 subjects (about an equal number of male as female) took part in two Ganzfeld sessions each. These subjects were selected on their experience with the use of cannabis. The second, exploratory part of series VI consisted of two conditions. In the first, 12 subjects (11 male, 1 female), experienced users of psilocybine, took part. In a second condition of this exploratory part, Ganzfeld induction was preceded by meditation. For this part, 7 subjects (5 female, 2 male) were selected on their experience with meditative techniques.

TARGET MATERIAL

In line with the findings of series II and IV, emotional target material was used. As can be seen in table 4, in series V eight 30 second clips were divided in two sets with 2 negative emotional and 2 positive emotional clips each. The same general set-up was used in series VI, with some new clips substituted to try them out as target material. These new clips were selected according to the subjective assessment of emotionality of the experimenters.

Table 4: Overview of target clips in series V and VI

series	clip	reference	emotion
V	Ajax	Eurocup final	victory
V	Sophies	movie 'Sophies Choice'	panic
V	banana	movie 'Sleeper'	frolic
V	tidal wave	movie 'Clash of Titans'	panic
V + VI	horse	commercial	freedom
V + VI	coffin	movie 'Sporloos'	confinement
V + VI	snake	commercial	fear
V + VI	baby	commercial	safety
VI	Ace	nature documentary	frolic
VI	JFK	movie 'JFK'	fear
VI	dancer	belly dancer scene	frolic
VI	Alive	movie 'Alive'	panic

DEPENDENT VARIABLES

Again, the main dependent variable in this study is psi performance as operationalized in the direct hit score.

INDEPENDENT VARIABLES

The first main independent variable in series V and VI is state of consciousness. Within-subject manipulated cannabis inducement in series V and in the formal part of series VI was meant to operationalise the idea that cannabis interference of the short term memory system might increase the level of 'spontaneousness' of subject's impressions, thereby lessening the 'inhibition' of possible psi mediated impressions by ongoing coherent cognitive processes.

In the exploratory part of series VI, two more altered state conditions were introduced. In the first, experienced meditators meditated before receiving Ganzfeld stimulation. In the second, 6 sessions were done in which two subjects simultaneously went through the Ganzfeld procedure after a psilocybine treatment, operationalising the idea that psilocybine increases the experience of an underlying, possible psi-mediating 'connectedness' to others. Judges in these exploratory sessions would be instructed to give special target relevance to overlapping protocol elements.

The second main variable in these two series is the judging procedure. Half of the sessions of series V were self-judged according to the standard procedure, the other half was done by independent external judges while the subject got feedback on the target without ever seeing the decoy pictures in the total target set. In series VI the judging in half of the sessions was done by the external judge *alone* as in series V but in the other half the external judge was judging too after the subject had judged.

An exploratory, non-manipulated variable in series V, was participants score on the Wordstem Completion Task (Merikle et al, 1995), a task designed to give an indication of the degree to which a subject's decisions are controlled by subconscious processes .

PROCEDURE

The procedure in V and VI was nearly identical to the one in IV B, with some adaptations. First, white noise and relaxation tape were computerised. Furthermore, though the experimental set-up in series VI

was analogous to that of series IV B and V, series VI was not run in the cellar of the psychology building but in two adjacent, 'de-sterilised' (i.e. pleasantly decorated) rooms on the fifth floor of the chemistry faculty which is next to the psychology building. Also, due to time restraints in series VI, no informal introduction meeting was held. Subjects were asked to sign a document declaring their informed consent. The both sessions a participant was run by his/her friend-experimenter. By random assignment it was determined which of both sessions was to be in the cannabis condition (determining the other as non cannabis) and which one was to be self-judged (with external judging as the alternative). For each participant, there was an interval of at least a week between the two sessions. The computer programme prevented the same target to pop up in both sessions.

In the cannabis condition, experimenter and participant took a few puffs from a joint about 15 minutes before the start of the session.

In the self-judging condition, the session was concluded with a judging procedure analogous to the one in series IV B. In the external judging condition, the computer showed the correct target clip (and no decoys from the corresponding set) to experimenter and participant. Both experimenter and participant then left the lab (taking the written protocol), leaving a standard sign indicating that the judges, by an alternative route, were free to enter the lab (thereby avoiding direct contact between both parties). Next, in series V two fellow experimenters served as external judges. Replaying the taped protocol, they rated the target alternatives (1 - 40), and, if necessary, discussed their first choice trying to reach a compromise. Final ratings were determined as the averages of both judgments for each alternative clip.

Participants completed the Wordstem Completion Task at the end of their second session.

HYPOTHESES

Hypotheses for the total of series V and VI were the following:

- I:** There will be an over-all direct hit rate which is significantly above chance. This hypothesis will be tested by calculating the continuity corrected z-score.
- II:** The hit rate will be higher in the external judging condition as compared to the self-judging condition. This will be tested using a Chi^2 statistic.
- III:** The hit rate will be higher in the cannabis condition as compared to the non cannabis condition. This too will be tested using a Chi^2 statistic.

RESULTS SERIES V AND VI

PARTICIPANTS

After their initial session, two participants were nauseated by their combined Ganzfeld - cannabis experience, and decided they would not co-operate a second time. For these, two new participants were recruited. During the second sessions also two participants became unwell. Their first sessions were taken into account, for the second session new participants were recruited.

DISTRIBUTION OF TARGETS AND RESPONSE BIAS

For series V and VI combined, table 5 represents the number of times that a specific clip has been selected as a target clip, the number of times it is selected by the participant, and the number of hits resulting from that choice, split for Cannabis condition.

Table 5: Clip distribution of choices and targets in series V and VI

(Ca = Cannabis, NCa = Non-Cannabis condition)

series	clip	Choices			Hits			%Hits			Targets		
		Ca	NCa	Tot	Ca	NCa	Tot	Ca	NCa	Tot	Ca	NCa	Tot
V	Ajax	3	1	4	2	0	2	67	0	50	3	2	5
V	Sophies	0	2	2	0	0	0	0	0	0	3	2	5
V	banana	2	1	3	0	0	0	0	0	0	2	3	5
V	tidal wv	5	3	8	2	0	2	40	0	25	3	2	5
V+VI	horse	9	7	16	2	1	3	22	14	19	5	5	10
V +VI	coffin	3	8	11	1	1	2	33	13	18	5	5	10
V +VI	snake	5	7	12	1	2	3	20	29	25	4	6	10
V +VI	baby	3	6	9	2	2	4	67	33	44	4	7	11
VI	Ace	3	2	5	0	0	0	0	0	0	1	3	4
VI	JFK	1	0	1	1	0	1	100	-	100	4	1	5
VI	dancer	1	1	2	0	0	0	0	0	0	3	2	5
VI	Alive	5	2	7	1	0	1	20	0	14	3	2	5
	Total	40	40	80	12	6	18	30	15	23	40	40	80

sis I

From table 5 it follows that 18 hits occurred in 80 sessions (22.5 %) of series V and VI. Therefore the first hypothesis has to be rejected. Given the equal over-all target distribution (last column) a correction for response bias is not required. The same holds for target frequencies on the different positions of the judging sequence (21, 20, 20 and 19 resp).

Hypothesis II and III

Results concerning the judging and cannabis variables are given in table 6.

Table 6: Results split for the conditions self-judging vs. external judging and cannabis vs. non-cannabis

series		cannabis		non cannabis	
		no. hits	no. misses	no. hits	no. misses
V	self judged	1	9	0	10
	ext. judged	5	5	2	8
VI	self judged	4	6	2	8
	ext. judged	2	8	2	8
	Total	12	28	6	34

Series V seemed to promise a clear judging variable with 7 hits in 20 sessions in the external judging condition, and only 1 hit in the self-judging condition. This effect was neutralised in series VI however, with the total of 11 hits in series V and VI in the external-judging condition not significantly different from the total of 7 hits in the self-judging condition.

The cannabis manipulation seems more promising, as can be seen in table 7 where we pooled series V and VI. The scoring percentage in the Cannabis condition is twice that of the control condition. However the

control condition is the one that is more deviant from chance. The difference is not significant and hypotheses II and III have to be rejected. The target distribution and the distribution of targets over position in the judging sequence split for cannabis condition together with the response biases of the subjects in the two conditions were used to calculate bias corrected chance probabilities. These were within 1% of the theoretical 25% and do not alter the conclusions with regard to the Cannabis manipulation.

Exploratory research: Wordstem Completion Task, psilocybine, and meditation

Since they are less able to ignore subliminal information presented to them, the cognition of participants with high scores on the Wordstem Completion Task is expected to be relatively more controlled by unconscious processes and material. These participants might be more 'naturally' prepared for the Ganzfeld stimulation to facilitate psi mediated information.

In series V only 17 participants completed the Wordstem Completion Task. Of these 17, the responses of 3 participants indicated a misunderstanding of the instruction, and they too had to be excluded from further analysis. A one-sided t-test comparing hits and misses resulted in a non-significant difference in the expected direction ($t = 1.19$, $df = 26$, $p = .25$).

In the exploratory part of series VI, two more altered state manipulations were used. In the first, experienced meditators meditated as a preparation to the Ganzfeld stimulation, using their individual techniques (no further relaxation induction was applied). 7 sessions resulted in 1 hit (14.3%). Clearly no conclusions can be drawn from this result.

Concerning the psilocybine manipulation, 6 sessions with 2 subjects yielded 7 hits. If we do not correct for a stacking effect this results in an exact binomial probability of < 0.05 .

DISCUSSION OF SERIES V AND VI

The series V and VI do confront us with some puzzling results. The formal part of these series concerned the effect of Cannabis and Judging procedure. We expected to find an increase in scoring rate in the Cannabis condition to a value clearly above the true effect size found in the normal population of around 33%. Instead, we found a quite similar effect size. To our surprise however the effect size for the untreated condition which should be 33% dropped to a near significant negative score of 15%. One might explain this by postulating that some subjects may have a preferred condition and use their ESP in the non preferred condition to exhibit psi-missing. This however, seems to us straight nonsense.

Our findings are reminiscent however of the differential effects reported by Rao (Rao & Palmer, 1987), who claimed that whenever he introduced a manipulation the over-all score tended towards chance and psi slipped into a differential effect rather than a main effect. A combination of this effect and an over-all decline effect (e.g. Bierman, 1993; Haraldsson & Houtkooper, 1994) seems the best way to describe the data of all Amsterdam Ganzfeld studies since 1983 (see table 8).

Table 8
Global review of All formal Amsterdam GF studies

Series	Year	type	N	hits	direct hit rate	effect-size (Cohen's h)	remarks
I	1983	manual	32	11	34.3%	0.21	control condition excluded / fb & nfb pooled
II	1987	manual	16	6	37.5%	0.27	subject scoring
III	1994	auto	40	16	40%	0.32	only CLV
IV	1995	auto	68	18	26.5%	0.03	CLV + PREC
V	1996	auto	40	8	20%	-0.12	CLV + PREC
VI	1997	auto	40	10	25%	0.0	CLV
TOTAL			236	69	29.2%	0.09	

It should be remarked that the table above does not include the meditation and psilocybine data (with 8 hits in 19 sessions) because these were exploratory.

It could be that a change of research question in itself is a necessary condition to keep the psi effects at an above chance level. This would however present an intrinsic problem when it comes to acceptance by traditional scientific standards. Effects that tend to evaporate upon replication are assumed to be non real in any other branch of science.

ACKNOWLEDGEMENT

We would like to thank all the student experimenters that brought their enthusiasm and inspiration to these experiments.

REFERENCES

- Bem, D.J. & Honorton, C. (1994) Does Psi exist? Replicable evidence for an anomalous process of information transfer. *Psychological Bulletin*, **115** (1), pp.4-18.
- Bierman, D.J., Berendsen, J., Koenen, C., Kuipers, C., Louman, J., Maissan, F. (1983) The effect of Ganzfeld stimulation and feedback in a clairvoyance task. In: R.A. White & R.S. Broughton (Eds.) *Research in Parapsychology, 1983*, Metuchen, N.J.: Scarecrow Press, Inc.
- Bierman, D.J. (1987). A test on possible implications of the Observational Theories for Ganzfeld research. *European Journal of parapsychology*, **7**, pp.1-11.
- Bierman, D.J. (1995). The Amsterdam Ganzfeld series III & IV: Target Clip Emotionality, Effect Sizes and Openness. In: *Proc. of the 38th PA Convention, Durham, NC*, pp.27-37.
- Bierman, D.J. & Radin, D.I. (1997). *Perceptual and Motor Skills*. **84**, pp. 689-690.

- Haraldsson, E. & Houtkooper, J.M. (1984) Perceptual defensiveness, ESP, Personality and belief: Meta-analysis, Experimenter and decline effects. In: D.J. Bierman (Ed.) *Proc. of the 37th PA Convention*, University of Amsterdam, pp.161-174.
- Honorton, C., Berger, R.E., Varvoglis, M.P., Quant, M. , Derr, P., Schechter, E.I., & Ferrari, D.C. (1990). Psi Communication in the Ganzfeld: Experiments with an automated testing system and comparison with a meta-analysis of earlier studies. *Journal of Parapsychology*, **54**, 99-139.
- Miller, (1976). Marihuana and human cognition: a review of laboratory investigations. In: S. Cohen & R.C. Stillman (Eds.) *The therapeutic potential of marihuana*, N.Y.: Plenum, pp.271-291.
- Merikle, P.M., Joordens, S., & Stolz, J.A. (1995). Measuring the relative magnitude of unconscious influences. *Consciousness and Cognition* , **4**, pp.422-439.
- Murphy, S.T.; Zajonc, R.B. (1993). Affect, cognition, and awareness: Affective priming with optimal and sub optimal stimulus exposures. *Journal of Personality and Social Psychology*, **64** (5), pp.723-739.
- Rao, K.R. & Palmer, J. (1987). The anomaly called psi: Recent research and criticism. *Behavioral and Brain Sciences* , **10**, pp.539-551.
- Van Kampen, D. , Bierman, D.J. & Wezelman, R. (1994). Personality and psi: Unravelling relations between extraversion, agreeableness and openness to experience with Ganzfeld performance. In: D.J. Bierman (Ed.) *Proc. of the 37th PA Convention*, University of Amsterdam, pp.175-181.

Word Count: 6470