THE AMSTERDAM GANZFELD SERIES III & IV: TARGET CLIP EMOTIONALITY INCREASES THE EFFECT SIZE, OPEN PERSONALITY DOESN'T HELP

Dick J. Bierman
University of Amsterdam & University Utrecht

Abstract

The results of two new autoganzfeld series, called Amsterdam-III and Amsterdam-IV, of in total 76 sessions are presented. The combined results show a strong over-all deviation from chance expectation (38.2 %, $p<0.006$ o.t.) in line with previous Amsterdam manual series and do strongly suggest the positive effect of either positive or negative target emotionality on the direct hit rate. (Neutral scoring: 28.1%; Emotional scoring: 45.5 % ($p<0.002$; o.t.))
A previous finding suggesting that the openness of the participant was a significant predictor of success could not be replicated. Also the vividness of visual imagery did not correlate with the psi measure.
An evaluation of all Ganzfeld series, including the manual series I and II, done at the University of Amsterdam to date does not show an expected decline.

Introduction

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. This bias enters at two levels. First, in order for the anomalous correlation to be noticed there must be two reports. E.g. first someone has to report a dream and later somebody else has to report an event which correlates strongly to that dream.
Obviously people are less likely to report trivial dreams. So trivial correlations are less likely to be noticed. But even if this is the case the apparent psi event is less likely to be reported to an outside researcher.
Therefore only experimental research is able to enlighten the role of the emotionality of events in psi phenomena. Dean (Dean, 197x) used names of friends versus control names of unknown people in a GESP experiment and found stronger effects for the known names. The dependent measure was a physiological one that may have measured unconscious effects. In order to assess if emotional material enhances conscious psi effects in free response psi it is necessary to introduce this type of material in a formal way in one of the free response paradigms that rely on conscious experience.

At the University of Amsterdam psychology students have to run a student research project as a part of their training. In the years 1982, 1986 two student projects (called Amsterdam I and II) used a Ganzfeld paradigm (Bierman, 1983 and 1987) but since then the atmosphere at the faculty was rather not supportive for 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 two student research projects were run in 1994 and 1995, both using the auto ganzfeld paradigm and both focusing on the influence of the emotionality of target material. Furthermore as a result of the sound leakage hypothesis the student research projects used no 'sender' (only clairvoyance & precognition)

Psychological research suggests that subliminal priming has the largest effect if the prime is of an emotional nature (Murphy & Zajonc, 1993). Of course it a very speculative to extrapolate this finding to primes with a stimulus duration of nil. Also it appeared that the effect of subliminal emotional priming is not present if the performance measure is of a multiple choice nature. Nevertheless embedding the present series in a framework of a regular psychological research helps the student-experimenters to feel comfortable with the project.

SERIES III METHOD

Experimenters and participants

The experimenters were 6 psychology students (3 male and 3 female) who ran the subjects as a formal part of their training. They selected this project out of a number of possible training projects. Two of the 6 declared themselves as sceptic, the others were open to the possibility of the reality of psi phenomena. The author supervised the project.

Each experimenter invited 7 friends to participate in the study. In total 40 friends did accept the invitation. Most of these were also students (21 male, 19 female, mean age 23.0).

Targetmaterial

The targetpool of series III consisted of 4 video clips. These were selected on the basis of personal judgement of the 6 experimenters as representing a typical positive emotion, one typical negative emotion and two neutral video clips.
The positively loaded clip was a TV commercial showing a HORSE which breaks free from a span(?) of horses. The negatively loaded clip shows a DINGO (a wild dog) chasing, catching and killing a little rabbit. The neutral clips were a fragment of a MERMAID and of an little INDIAN carrying some wood through the hills. Each clip lasted 30 seconds and was transformed into Quicktime format and stored on the hard disk of the experimental computer.

The informal target selection by the experimenters described above was later checked against an emotionality score that the subjects gave to each of the clips after the judging but before the feedback.

Dependent variable

The dependent variable in this study is the psi performance. This variable is operationalized as the direct hit score.

Independent variables

Emotionality of the target.
There are two conditions: Neutral (N) and Emotional (E).

Openness of the participant.
The openness score of the participants is assessed using the openness scale of the Dutch version of the NEO-PI (48 items, 8 items for each facet). The questionnaire was filled in before the participants came to the experimental session.

Procedure
The procedure in both series III and IV 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 also because all targets were stored in the computer. Therefore a single experimenter protocol could be followed.
Lots 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 session took place about a week later in the basement of the faculty of psychology of the University of Amsterdam. The two experimental rooms are not soundproof and therefore it could not be avoided that environmental noise (like cars) was sometimes heard by the subject even when the white noise was playing on his/her earphones.
During the first 27 sessions special Ganzfeld goggles were used rather than the traditional ping-pong balls. However during session 27 the goggles did not function anymore and from then till session 40 ping-pong balls were used. The computer which controls the experiment is situated in the subjects room at a distance of about 2 meters.

After the experimenter has installed the participant with the Ganzfeld goggles in a reclining chair and has adjusted the noise level to a pleasant level, the computer program is started and a metal cap is placed over the monitor. The experimenter then proceeds to the experimenter room and starts the relaxation tape. In the meanwhile the computer program just pauses. After 11 minutes the relaxation tape is over and the white noise is played to the earphones of the subject for 30 minutes. The experimenter starts making notes of the mentation of the participant. After 10 minutes the computer selects randomly one of the 4 targets and starts playing back this video 4 times with the audio channel switched to 'off'. The random selection is, without the knowledge of the experimenters, done in such a way that the frequency of each of the targets is not allowed to differ more than 1 from the mean value of 10. This is done in order to have a minimal impact of response biases.
At the end of the ganzfeld period the experimenter returns to the participant room and takes of the goggles and the earphones. The participant stays in the reclining chair. The computer shows the 4 video clips with audio on in random order and the participant is asked to give his/her first guess. Then the experimenter goes step by step through the mentation report and a final judgement is entered into the computer as a rating between 1 and 40 for each of the 4 video clips.
After this but before the actual target clip is revealed the subject has to rate the emotionality of the 4 clips.
Then the computer shows the target clip and the session is ended. After the session the experimenter joins the participant for a cup of coffee in the local canteen or pub.

Hypothesis
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 hitrate 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 has to be tested by a 4 cell chi-square with hits/misses and emotional/neutral as factors. This analysis takes 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.

SERIES III Results

Emotionality of the targets

Participants gave significantly higher e-scores to the targets that were intended to be emotional than to the neutral ones. ($t = 4.692$, $df = 97$, $p<0.00001$). Therefore it can be concluded that this manipulation was a success.

Hypothesis I: over all results cannot be attributed to chance

Table 1 gives the number of times the different video clips were target of series III

N: INDIAN	10
N: MERMAID	9
Total Neutral	19
E+: HORSE	10
E-: DINGO	11
Total Emotional	21

It can be seen that emotional targets were used 21 times against the neutral ones 19 times.

Table 2 gives the number of times a specific response was made. Rather than representing the data as a percentage of the total number of times a specific target was used it is represented in terms of how many times a specific response was made and how often that response was correct. This corrects for response biases (assuming that all targets are equally probable which was approximately the case in series III).

Table 2 Raw data for responses of participants

RESPONSE is	Number of these responses	response was a hit	response was a miss	hits / N (%)
N: INDIAN	9	3	6	33.3%
N: MERMAID	11	3	8	27.3%
N total	**20**	**6**	**14**	**30%**
E+: HORSE	16	7	9	43.8%
E-: DINGO	4	3	1	75%
E total	**20**	**10**	**10**	**50%**
OVER-ALL	**40**	**16**	**24**	**40%**

The corrected z-score for the over-all result is 2.0. ($p < 0.02$, one tailed). Therefore the first hypothesis is confirmed.

Hypothesis II: Emotionality of targets

As can be seen from table I scoring for the emotional targets was 50% while this was only a marginal 30% for the neutral targets. In order to test the difference a chi-square was calculated (chi-2 is 1.67; df=1.) This is a non significant value and therefore it can not be concluded that emotional targets do result in stronger effect than neutral targets. However the emotional responses alone are independently significant (corrected $z = +2.3$; $p < 0.02$ one-tailed)

Hypothesis III: Openness of participants

The mean openness score for the participants who had a hit was 16.7 while the mean score for the hitters was 12.5 ($t = -0.718$, n.s.)

Hypothesis IV: Interaction between personality and target type

To test if there was an interaction effect in the sense that the more open people tended to score on the emotional targets while the more closed participants would score on the neutral targets, an ANOVA was performed.

The Openness score (facet: openness for emotions) was the dependent variable with the emotionality of the target as one factor (Emotional vs. Neutral) and the score (hit vs. miss) as a second factor. The F-value of the interaction was only 0.174 (df-=1; n.s.)

SERIES III Discussion consequences for SERIES IV

- The non replication of the openness effect which was established in the Utrecht ganzfeld novice series (van Kampen et al, 1994) was puzzling. It was suggested that the fact that experimenters ran their own friends may have favoured a natural openness in which also the more closed participants felt free to express their experiences. Therefore it was decided that in a future series friends should be run by non intimate experimenters.
- It was evident that the power of the experiment was not enough to establish a differential effect between emotional and neutral targets. Nevertheless it seems a not too wild assumption that target contents is a relevant variable. Remote viewing research with static targets has suggested that also physical parameters like entropy gradient in the targets may play a role (May et al, 1994). It is difficult to determine this parameter for dynamic targets so it may have been the case that the present emotional clips were just different in that respect. In any case there was more movement in both emotional clips than in the neutral ones. Therefore more diverse emotional targets were planned in series IV.
- The presentation of the targets during the Ganzfeld session on the screen of the video display may have caused some auditory cues. First hard disk head movements may cause some specific auditory patterns. Of course the participant's white noise is 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 that especially emotional clips would be helped by this normal explanation.

  Secondly it may be that the display produces some ultrasonic beep tones which may be different for different targets. Therefore it was felt that in future series at least part of the trials should be in a precognition condition.

METHOD SERIES IV

Experimenters and Participants

Experimenters and participants were selected in exactly the same way as in series III. There were 2 male and 4 female experimenters. Again two student-experimenters declared themselves sceptic. There were 19 male and 17 female participants (the mean age of 24.9 years was slightly larger than in series III)
The number of actual participants was lower than planned due to no-show and computer failure.

Target material

In series IV the target selection was a bit more formal. Thirteen clips were presented to 15 subjects before the experiment started. These clips were rated on an emotionality scale and subsequently the two most positive, the two most negative and the two most neutral targets were selected to be used in the actual experiments. However also in this series the 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 of series III, a BEATLES clip.

Negative: the TIDAL WAVE clip of setnr. 20 of the PRL Ganzfeld study, KENNEDY assassination (not the Zapruder film).

Neutral: a fragment of TRAFFIC, the LOTTO balls. Both neutral clips were very dynamic in physical terms (lots of movement) but carried hardly any meaning (or change in meaning).

The emotional clips do differ in another aspect which was completely informally introduced. Two of the clips concern real-life clips (BEATLES & KENNEDY) while the two others are artificial. Also the real-life clips are black & white.
The 30 second clips were transferred to hard disk in QT II format which resulted in improved image quality.

Dependent variables

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

Independent variables

Apart from the variables from series III, emotionality of the target and openness of the participant another participant variable was added, namely the participants ability to produce imagery. This was measured by a Dutch version of the 'vividness of visual imagery questionnaire' (VVIQ, Marks, 1973).

Procedure

The procedure in this experiment was identical to the one used in series III. However in about 50% of the trials there was no target selection and of course no display of the target until after the judging (precognition condition). The experimenters were kept blind to the condition.

Also the first intuitive guess became part of the formal dependent variables and therefore the computer program was adapted to register this choice.

Hypotheses
The hypotheses are identical to series III however two more were added.

hypothesis V: Vividness of Imagery effect

Hitters will have a higher imagery score than missers. This will be tested by a two sample independent t-test.

hypothesis VI: Intuitive scoring

Intuitive (first impression) scoring will be better than the cognitive based final scoring. To be tested by a chi-square.

Results series IV

Emotionality of targets
A t-test between participants scores of neutral and emotional target clips shows that the manipulation has succeeded. ($t(34) = 3.89$; $p<0.0004$)

Distribution of targets
Due to computer failure the selection of individual targets was more unbalanced than was planned. Table 3 gives the number of times that a specific clip has been selected as a target clip. It can be seen that in 11 cases a neutral clip and in 25 cases an emotional clip was chosen as target. The objective was to have an equal frequency of 6 for each target..

Table 3: Distribution of targets in series IV

E+: BEATLES	6
E+: HORSE	7
E-: Kennedy	4
E-: TIDAL WAVE	8
Total Emotional	25
N: TRAFFIC	8
N: LOTTO	3
Total Neutral	11

Table 4 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. It can be seen that precognition and clairvoyance scores are not different and they will be pooled as planned.

Table 4

RESPONSE is	Number of these responses	response was a hit	response was a miss	hits / N (%)
N: TRAFFIC	8	3	5	33.3%
N: LOTTO	4	0	4	0.0 %
N total	**12**	**3**	**9**	**25%**
E+: HORSE	8	4	4	50%
E+: BEATLES	4	1	3	25%
E-: TIDAL WAVE	6	4	2	66 %
E-: KENNEDY	6	1	5	16.7 %
E total	**24**	**10**	**14**	**41.7%**
OVER-ALL	**36**	**13**	**23**	**36.1 %**

Hypothesis I
From table 4 it follows that 13 hits occurred in 36 sessions (36.11%). This corresponds to a corrected z-score of 1.54 (p = 0.06; o.t.) and therefore the first hypothesis has to be rejected. It should be noted that there were 21 sessions in the clairvoyance condition with 7 hits (33.3%) and 15 session in the precognition condition with 6 hits (40%).

Hypothesis 2
Although like in series III the excess hits are mostly for emotional responses the chi-2 which tests for a difference caused by this condition is far from significant. (chi2 = 0.536, df=1 n.s.). Therefore it is obvious that no firm conclusion may be drawn.

Hypothesis 3
The mean openness score for the hitters is 24.5 while for the missers this score is 35.8 The difference is significant but opposite to the predicted one (t(34) = -2.09; p=0.04).

Hypothesis 4
An ANOVA with total openness-score as dependent and hit/miss and emotion/neutral as factors gave a F of for the interaction of 0.0002.

Hypothesis 5
The average imagery score of the hitters was 39.8 and near equal to the score of the missers of 37.3 (t=(34) = 0.66; n.s.).

Exploratory hypothesis 6
There were 3 instances where a participant changed his choice from the initial intuitive one to the final more cognitive one. One hit changed into a miss and two misses changed into one hit. Thus there is nil difference between the two dependent measures.

COMBINATION OF SERIES III and IV and comparison with manual series I and II

Before the start of both series the supervisor emphasised to the student experimenters that these series must be seen as small contributions in a world wide effort. The power of the individual series was supposed to be too small to find any significant effects so the significant support for hypothesis 1 in series II came somewhat as a surprise. Since both series are conceptually identical and the procedures do only differ in details we may pool both series into one table.

Table 5

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)	8	3	5	37.5%
N: LOTTO	IV (1995)	4	0	4	0 %
N total		**32**	**9**	**23**	**28.1 %**
E+: HORSE	III & IV	16+8	7+4	9+4	45.8%
E+: BEATLES	IV (1995)	4	1	3	25%
E-: DINGO	IV (1995)	4	3	1	75%
E-:TIDAL WAVE	IV (1995)	6	4	2	66%
E-: KENNEDY	IV (1995)	6	1	5	16.7%
E total		**44**	**20**	**24**	**45.5 %**
OVER-ALL		**76**	**29**	**47**	**38.2 %**

The continuity corrected z-score for the over-all results is + 2.52 but what is more important is the effect size of 0.285 which fits perfectly well within the distribution of effect sizes found in previous meta-analyses (Honorton & Hyman 1986, Honorton et al 1990, Bem & Honorton, 1994).

Although the effect size in series IV is slightly smaller than the one found in 1994 and might have been even smaller if an equal number of emotional and neutral target would have been used, an evaluation of the time dependent trend of all the Amsterdam series does not show the typical declines that are so often found in psi research (Bierman, 1993, Haraldsson & Houtkooper, 1994). The table 6 showing the accumulated results is in fact rather impressive because of its consistency over the years.

Table 6

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	36	13	36.1%	0.24	CLV + PREC
TOTAL			124	46	37%	0.26	

DISCUSSION

During series III one subject fell asleep. The data of this subject were included in the analysis. The same happened during series IV. Both sessions resulted in a miss.

The present results of series III and IV are consistent with each other in as far as the over-all psi performance and the effect of the emotionality of the target is concerned. Although even the combined series chi-2 which test for a differential effect between emotional and neutral targets does not give a significant value we feel that the present series certainly do provide some support to the notion that emotionality of events may play an important role in lab and field psi phenomena (chi2 = 2.12, df=1; Fishers exact p = 0.16). The informal introduced aspect of real-life vs. artificial emotionality did not provide clues for further formal manipulation of this aspect of the target material.
The consistency with the manual series looks very convincing but what we should have expected is a significant increase in effect size because in the latter two series dynamic targets were used rather than static ones as in series I and II. So should we consider this as a virtual decline?
Series IV also confirmed the null finding in series III 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 did disappear in his auto Ganzfeld. May we see here a secondary type of decline effect? According to von Lucadou (1994) this type of correlations once well established should tend to decline or even reverse if the design is such that we in principle can use them to enhance the 'signal'. Is this what happens here?

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