

ESP under the Ganzfeld, in Contrast with the Induction of Relaxation as a Psi-Conductive State

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ABSTRACT: Ganzfeld stimulation is associated with an increase in attention to internal imagery. Investigators have suggested the association with a view to developing an “experimental hypnagogic” technique in order to facilitate the study of hypnagogic imagery. The present experiment uses a telepathy-focused, non-ganzfeld condition, the findings of which were compared to the ganzfeld technique, in counter-balanced order. One hundred and thirty-eight participants attended two GESP trials at the Institute for Paranormal Psychology, in Buenos Aires. The majority of the participants (93.5%) reported previous personal experiences suggestive of psi. The first author was the experimenter and the second author was the sender for the entire sample. Two questionnaires were administered before, and one after, the ganzfeld session, to evaluate mental activity, bodily changes, pleasant experiences, and change in state of awareness. A CD-R containing 3,500 high-resolution colour pictures was used to provide image-targets. We would conclude that this experiment offered some support to the claim that ganzfeld stimulation is psi-conductive, to the extent that there was a significant difference between the two test conditions, in a direction favouring the ganzfeld condition. Expected percentage of hits was 25%. The ganzfeld gave 41.3% hits, $p < .001$, the non-ganzfeld 27.5%, and the difference between the two conditions was also significant, $p = .016$. No relationship was found between prior psi experiences and ESP scores. Nevertheless, we did not conclude that the “good” ESP results using ganzfeld were related to a modified state of consciousness because these results might depend upon other variables independent of the non-ordinary state.

INTRODUCTION

One of the first investigators to introduce the use of the ganzfeld in parapsychology was Charles Honorton (Honorton & Harper, 1974), who believed that the experimental production of hypnagogic imagery could facilitate the reception and recognition of extrasensory perception in the laboratory. This idea came about because of the similarity between the hypnagogic state (a state of sleepiness occurring during waking up from a dream) and certain altered states of consciousness traditionally associated with spontaneous psychic experiences. Psi phenomena have a long tradition of being linked to altered states of consciousness (Alvarado, 1998). Bertini, Lewis, and Witkin (1964) were the first to exploit such states in an “experimental hypnagogic” technique in order to facilitate the study of hypnagogic imagery. This tradition extends to psi laboratory work that has used hypnotic suggestion, dreams, meditation, and partial sensory deprivation. Ganzfeld stimulation, which involves the reduction of patterned sensory stimulation (“noise”) and the deployment of attention towards internal mentation, could serve to “carry” psi impressions.

Most of the studies on the relationship between ESP and altered states have taken place in the laboratory. The reported success of these various possible psi-conducive states might stem from several sources. Attitudinal factors may be affected; that is, ESP performance may be enhanced by virtue of the fact that, while in one of these states of consciousness, the individual is more inclined to believe that ESP is possible; the state of consciousness may thus help to break down or suspend the participant’s socially-conditioned intellectual defences against the notion of ESP. Moreover, these potentially psi-conducive states generally encourage greater levels of relaxation and withdrawal of attention from the external world. Thus, ESP appears to be facilitated by minimising concurrent sensory and proprioceptive stimulation, and by promoting absorption in the internal processes of mentation (Honorton, 1974; Stanford, 1992).

However, it is necessary to refer also to Adrian Parker’s hypothesis linking psi with altered states of conscious. Parker (1975) employed the ganzfeld as a potentially psi-conducive methodology at the same time as Honorton. Parker’s focus is on alteration of consciousness, while Honorton’s is on noise reduction (Honorton, 1974; Stanford, 1987). One of the claims made for ganzfeld studies is that they are more successful at detecting ESP, compared to non-ganzfeld conditions. Stanford and Frank (1991) intended to replicate studies showing that temporal trends in the characterisation of ganzfeld utterances were indicators of arousal,

spontaneity, and the development of an internal focus of attention, as well as predictors of free-response ESP task-performance, indicating that what the ganzfeld really manipulates is spontaneity (Stanford, Angelini, & Raphael, 1985; Stanford, Frank, Kass & Skoll, 1989a,b).

During the 1970s, many ESP studies concerned the participant's self-reported state of consciousness during a free-response ESP test. These studies bear directly on the question of whether the ganzfeld is psi-conducive. For example, Stanford and Neylon (1975) used the ganzfeld technique to induce an altered state of consciousness in their participants. The mean ESP score in this experiment was below chance, and there was a significant negative correlation between these ESP-scores and participants' self-reports of a change in body awareness during the ganzfeld. In addition, other studies explored mental imagery and ESP, and magnitude of ESP-scores, in a way that included relaxation and visualisation exercises (Palmer & Vassar, 1974), practitioners of Transcendental Meditation (Palmer, Khamashta, & Israelson, 1979), and, of course, ganzfeld experiments (Palmer, Bogart, Jones, & Tart, 1977).

Palmer et al. (1979) also employed ganzfeld-ESP experiments using unselected participants and including Carl Sargent's (1980) rating scales for altered states of consciousness in the ganzfeld. Participants' ratings of the degree to which the ganzfeld caused them to enter an altered state of consciousness were positively correlated with ESP-scores in all the experiments, significantly so in three of them (Eysenck & Sargent, 1982, p. 97). These authors briefly mentioned a literature review, but, unfortunately, they reported no details of the test of their model.

Like other forms of sensory deprivation, ganzfeld stimulation is associated with increased attention to internal imagery. Studies of sensory deprivation suggest that perceptual isolation effects are related to length of isolation. This appears to be particularly true in the case of ganzfeld stimulation, which is characterised by reports of being immersed in a "sea of light", disorientation, and the occurrence of "blank out" periods in which there is a complete disappearance of visual experience (Avant, 1965). However, Tart (1978) has argued that we cannot be sure that our procedures are actually causing changes in participants' attention states because such changes are not always measured in the studies. In fact the Sargent scale was the only one given in the ganzfeld condition. The argument is that, although some procedures may have a track record of producing ESP, we do not know whether an alteration in consciousness has occurred, or to what degree, and whether an alteration in consciousness contributes in any way to success in the test.

Few experiments have included control conditions in which ganzfeld stimulation is compared directly with a non-ganzfeld condition, yet

such a comparison is directly relevant to the question of whether ganzfeld stimulation is psi-conductive. Braud, Wood and Braud (1975) were the first to perform a controlled comparison: they tested 10 participants using a free-response GESP test and 10 participants who did not undergo ganzfeld stimulation. Ganzfeld participants scored significantly above chance ($p < .001$), the control group, at chance, the difference being significant ($p < .025$).

The first study in Europe was conducted at the University of Amsterdam using a free-response clairvoyance experiment ($N = 32$), and a ganzfeld condition ($N = 16$). Bearing in mind that MCE was 25%, the results were 12.5% in the non-ganzfeld condition and 43% in the ganzfeld condition (Bierman et al., 1984). Van Dalen, Dias, Murre, and Schouten (1988) tested 41 participants, who took part in one ganzfeld trial and one non-ganzfeld trial, but with no significant difference. Simmonds (2002), who presented work at a P.A. Convention addressing a ganzfeld and a waking control condition, reported that there was some indication of differences in psi performance depending on state, but she failed to find a significant psi effect for either the ganzfeld or the waking control condition. It should be noted that apart from the work of van Dalen et al. (1988) and that of Simmonds (2002), much of this work has employed a between-participants design. Woof, Kirk, and Braud (1977) also failed to find above-chance scoring in the ganzfeld condition, and Braud, Davis, and Opella (1985) compared a ganzfeld condition with different control conditions and found a physiological difference among the participants, although they did not actually address ESP-performance.

The present study compares psi in the ganzfeld with a non-ganzfeld condition and in addition explores altered states of consciousness in the ganzfeld. It was hypothesised that this experiment would yield support for the hypothesis that the ganzfeld is psi-conductive, and that there is a difference between the ganzfeld and non-ganzfeld conditions favouring the ganzfeld condition. The rationale was that if the ganzfeld truly induces a non-ordinary state of consciousness, this would increase ESP-scores; that is, it was assumed that the presence and intensity of a non-ordinary state of consciousness are related to the number of ESP hits. It was decided in advance that we could only conclude that this experiment offered support for the claim that ganzfeld stimulation is psi-conductive if there was found to be a significant difference between ganzfeld and non-ganzfeld conditions.

A secondary aim of the study was to gain more insight into the effect of ganzfeld stimulation on participants. With this purpose in mind, a number of features were evaluated by Sargent's rating scales, administered after the ganzfeld stimulation. Thus, the second hypothesis was that presence and intensity of a non-ordinary state of consciousness is related to

high ESP scores: For example, the presence of features such as mental activity, visual imagery, body awareness, etc., were predicted to be related to above-chance psi-performance.

METHOD

Participants and Procedure

The sample consisted of 138 participants (89 female and 49 male [64.5% and 35.5%]) who were all well-educated and psi-believing. Age ranged from 18 to 77 years ($M = 46$ years, $SD = 13$ years). Participants were students of parapsychology at the Institute of Paranormal Psychology in Buenos Aires. Personal experiences suggestive of psi were reported by the vast majority of participants (93.5%): 10% reported having an ESP experience once, 66.7% reported having one “sometimes”, and 15.6% reported such experience “often”. Seventy-eight percent had some training in meditation or other techniques involving an internal focus of attention. Each participant attended two GESP trials (telepathy-focused), one using ganzfeld, the other using the techniques of free-response tests. The experiment was carried out between April 2001 and September 2002.

Participants were recruited by mailing announcements (pamphlets) and by using a mailing list. The pamphlet gave a brief explanation of the ganzfeld procedure and encouraged readers to have an interview with the authors in order to gain more information about the technique, and to visit the ganzfeld laboratory. An announcement was also placed on the Internet <www.alipsi.com.ar/ganzfeld.htm>.

Sender and Experimenter

The first author (AP) was the experimenter, who received each participant, while the second author (JV) was sender for all trials. Each session consisted of two trials per participant, namely, the ganzfeld and the non-ganzfeld condition, counterbalanced across participants. The sender believed in psi, had taken part in other ESP studies as sender (Parra & Villanueva, 2003a,b, 2004), and knew meditation and imagery-techniques. He is also a yoga instructor.

Layout and Equipment

The ganzfeld room is soundproof, carpeted, the walls consisting of panels of pressed cardboard 4-inches thick, which do not allow for interior or exterior sounds to disturb the participant during the session. It has only

one access door. Participants are first sequestered in an adjacent (reception) room. Participant and sender remain isolated in their respective rooms until the participant completes the blind judging procedure.

The participant remained lying down on a *chaise longue*; a slight inclination of 30 degrees allows the participant's head to remain comfortably inclined. Translucent hemispheres (two halves of a ping-pong ball) are taped over the participant's eyes, firmly fastened to a cotton mask with transparent adhesive tape.

Two red-filtered, 70-watt, floodlight bulbs, located approximately two metres in front of the participant's face, were adjusted in intensity until the participant reported a comfortable, shadow-free, homogeneous visual field. The white noise level is similarly adjusted; the participant is informed that the noise should be as loud as possible without being annoying or uncomfortable.

A SanyoTM MCD-X97 CD player connects the participant with the auditory stimuli by means of headphones to his or her ears. The participant could not adjust the volume of the CD. AP controlled the duration of the ganzfeld session using a chronometer that synchronises both the digital counter of the CD's revolutions and the computer's real-time clock. The computer peripherals used by the sender included a real-time clock, a CD-R player (56X speed) that played CD-pool targets, and a Pentium IIITM computer with an AcerTM, Super VGATM colour monitor.

The ganzfeld room was at a distance of about 35 metres from the sender's room. The rooms utilised in this experiment are indicated in Figure 1 as A (ganzfeld room), B (experimenter's room), C (sender's room for target-viewing), D (participant's room for non-ganzfeld test), and E (sender's room for non-target viewing period). All the rooms depicted in Figure 1 were on the same floor, except for the ganzfeld room, which is one floor above the sender's room (2.6 metres upstairs).

Materials

We used the *Sargent Questionnaire*, which was originally taken from Carl L. Sargent (Sargent, 1979, 1980), and re-designed by us. We used 10 questions, which referred to mental activity, visual imagery, effort to obtain imagery, body awareness, body perception, estimation of time, and out-of-body experience. It was administered only in the ganzfeld condition.

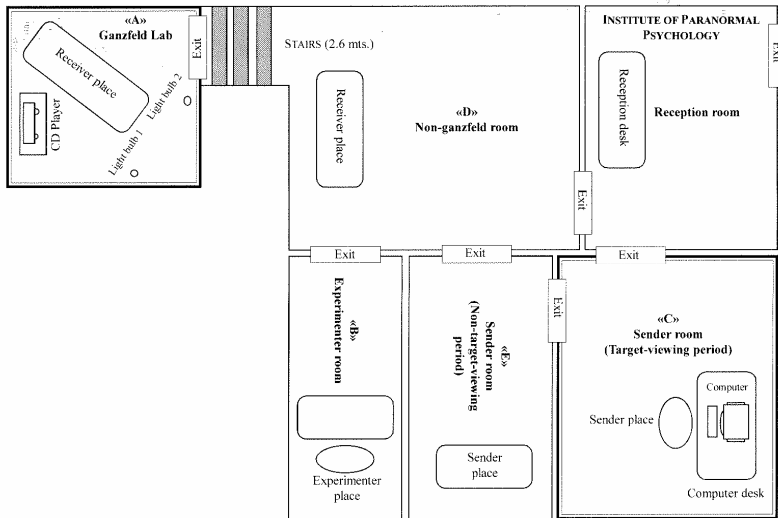


Figure 1. Ganzfeld setting layout.

Targets

A CD-R contained 3,500 high-resolution *jpg* pictures. All pictures were taken from clip-art (CD-ROM *IMSI*), which contained nine groups of well-differentiated pictures, such as animals, icons, foods, people, landscapes, religion, scenic pictures, structures, and humorous cartoons. AP selected approximately 200 attractive pictures from each group and designed a pool where all the pictures of each subgroup were numbered from 1 onward. An individual who had no contact with the participants and the sender, and almost none with the experimenter, used digits from a RAND Corporation (1955) table to select, separately and sequentially, pictures within each subgroup.

Following this step, AP delivered to JV the CD with the pictures re-clustered and divided by groups. JV then randomly selected one picture (as target), and following that, three “decoys”. The target picture came from different, randomly selected subgroups (e.g., a horse from the subgroup *animals*, a baby sleeping with his mother from the subgroup *people*, a church from the subgroup *religion*, and Popeye and Olivoil from the subgroup *Humorous cartoons*). The target picture was selected after the experimenter and participant went to the ganzfeld room (A), and the three decoys were selected before AP and the participant came to the sender’s

room (C). During the judging part of the procedure, the sender remained alone in Room E. A standard coding of digits was used to identify each participant, determined by their order of testing.

When the condition (ganzfeld or non-ganzfeld) was finished, JV used a randomisation procedure to display three decoys and the target-picture for judging. The sender randomly assigned a value (1-4) to the target-picture. *Adobe Photoshop 5.0™* was used to display four pictures at the same time, and did not allow any sensory cues to pass between participant and experimenter. AP was blind to the outcome of both randomisation procedures, and target-pictures were never printed on paper.

It was decided to use these procedures for five reasons: (1) picture subgroups are easily clustered; (2) it facilitated the randomisation process; (3) target-pictures were characterised by their diversity and visual attractiveness—thought to be aspects of a good target in a GESP experiment; (4) it avoided any sensory (visual) cues; (5) it avoided any target manipulation during both the target-viewing and the judging process.

Target security

JV selected the targets—for each participant and each condition—individually, prior to each session. However, he kept a paper-and-pencil register of the names of each participant and selection of target-picture. This was never in contact with AP (a security copy was kept by JV in a safe place unknown to the experimenter). JV kept the register in a closed envelope with him. Before each condition, JV remained alone in the sending room, where he prepared each target. This procedure protected against the (unlikely) possibility of any leaking of target-information to AP. The experimenter had no access to the sending room before and during the session. Sender and experimenter were kept separate in different rooms (see Figure 1).

Moreover, the experimenter did not show the sending room to the participant before their first session (participants will have seen the sending room at the end of their first session; in the 2nd session, they knew what the sending room was like). The experimenter had no contact with the sender during the viewing of the target picture, because the experimenter left the sending room before the sender selected the picture-target.

The distance between sender-participant during a session, as well as the walls of the Institute, and the design of the ganzfeld room, are all optimal, and can safely be assumed to exclude the intentional or unintentional communication of sensory cues.

Test instructions

The experiment was explained to each participant. They were told that (1) they were participating in a telepathy experiment in which there were two conditions—ganzfeld and non-ganzfeld conditions; (2) both conditions were said to elicit psychic abilities in people; and (3) the experimenters were now exploring both situations in a single research project, with a view to evaluating the relative advantages of the two conditions for eliciting psychic ability.

Altered state manipulation

In the ganzfeld condition, participants underwent a 9-minute recorded relaxation exercise before the target-viewing period, which included autogenic phrases (Jacobson, 1974) recorded using the voice of the experimenter AP. The instructions and relaxation exercises were delivered in a slow, soothing, but confident manner, with classical music in the background (Antonio Vivaldi's *Double concerto*, Largo G Minor). The auditory stimulation was a 33-minute period of white noise, on a CD produced for this experiment.

In the non-ganzfeld condition, the experimenter instructed the participant to "remain with eyes closed, quiet, and waiting for mental impressions for a 23-minute period." The participant was also free to choose whether to have a relaxation technique. Neither music nor sounds were used.

Testing procedure

Participants received an information pack prior to the session. It included a 4-item psi experience questionnaire designed by the authors. Also given was general information about the research program.

AP greeted participants at the door upon arrival, and attempted to create a friendly and informal social atmosphere, engaging in conversation before the session. The attempt was also made to create positive expectations regarding the identifying of the targets.

Both conditions were carried out in separate rooms, one of them using the free-response technique with ganzfeld stimulation and the other using a non-ganzfeld free-response method. Participants visited the Institute on just one occasion, and ganzfeld and non-ganzfeld conditions were counter-balanced. The sender was not aware of which condition (ganzfeld or non-ganzfeld) the experimenter had randomly chosen. In the non-ganzfeld condition the test room was well lit and quiet; the participant remained seated in a chair at a desk.

In both conditions, the experimenter left the room once the experiment began, and returned when the target-viewing ended. Again, the experimenter remained silent in room B and controlled the session duration using a chronometer. When the participant was at the beginning and at the end of the session, the experimenter used a caller (a sound gadget which emits one *bip*) to indicate to the sender the beginning and end of the viewing period. The target-picture remained on the sender's computer screen for 23 minutes. The non-ganzfeld condition was equal to the ganzfeld condition in all respects except that there were no halved ping-pong balls, no red light, no headphones, and no white noise.

Each participant was asked to verbalise their mental impressions as much as possible during the condition, and these were tape-recorded by the experimenter. Many people felt better speaking *after* rather than *during* the ganzfeld condition, and this was better for obtaining information about the mentation of the participant and for tape-recording them; thus, participants were not asked to verbalise during the session because it was transcribed from the tape-recording directly.

Judging procedure

For ganzfeld and non-ganzfeld, the participant viewed the four potential targets (the actual target and three decoys) on the computer screen. The actual target was randomly presented in one of four positions on the screen. As the participant viewed each potential target, they associated to it as though each were the actual target, pointing out perceived similarities between the item and the ganzfeld impression. A score of 1 was assigned to the item that the participant felt had the strongest similarity to their ganzfeld impressions; a score of 2 to the next most-similar picture; 3 to the picture judged 3rd, and a score of 4 was given to the picture that the participant felt was *least* like their ganzfeld experience. The experimenter did not suggest any additional comments during the judging process. Depending on the participant, the judging procedure lasted between 5 and 10 minutes for both conditions (ganzfeld/non-ganzfeld). Consent forms and judging forms were signed by participants.

RESULTS

Pre-planned analysis

It was hypothesised that this experiment would yield support for the psi-conduciveness of the ganzfeld stimulation, and it was expected that there would be a significant difference between ganzfeld and non-ganzfeld

conditions in a direction favouring the ganzfeld condition. Table 1 indicates that the obtained results were better using the ganzfeld condition than the non-ganzfeld condition (for the former, $p = .0003$, one-tailed; for the latter, $p > .05$). Note that the z score was obtained by means of the sum-of-ranks statistic.

Table 1
Distribution of Scores: Judging Procedure

	Scores (hits as %)					p (1-tailed)
	1 st	2 nd	3 th	4 th	z score*	
Expected	25.0	25.0	25.0	25.0		
Observed Ganzfeld	41.3	18.8	21.7	18.1	-3.47	.0003
Observed Non-Ganzfeld	27.5	26.8	23.9	21.7	-1.03	> .05

* Negative z score indicates score position. First is highest coincidence; fourth is lowest or null. Hits refer to first-place rank ($P = .25$).

To compare the results obtained in the ganzfeld condition with those in the non-ganzfeld condition, the Wilcoxon test for paired samples was applied. This test gave $z = 1.70$, $p = .043$, one-tailed ($Phi = .14$), a significant difference favouring the ganzfeld condition.

Secondary analysis

A secondary aim of this study was to gain more insight into the effect of the ganzfeld stimulation on participants. A number of characteristics of ganzfeld mentation were measured using the rating scales of the *Sargent Questionnaire*, following the ganzfeld stimulus. Tables 3 and 4 show the intensity of the state of consciousness with evaluations indicating whether such items as mental activity, visual imagery, body awareness, etc., were good predictors of psi performance.

Using an independent samples t test, Table 3 compares the results of the present study with Sargent's for continuous variables. During the ganzfeld stimulus, a significant difference was found on "Mental Activity" (lower in our study than in Sargent's study, $p < .05$, two-tailed) indicating more structured mental activity than in Sargent's study.

Table 3

Results of the Mean and *SD* Scores of Sargent's Questionnaire: Comparison Between the Present study and the Sargent (1980) Study

ITEM #	Present study (<i>N</i> = 138)		Sargent study (<i>N</i> = 66)		<i>t</i> test
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
1. MENTAL ACTIVITY (structured = 0; bizarre = 99)	62.35	24.28	70.13	23.10	- 2.17*
2. VISUAL IMAGERY (non-vivid = 0; very vivid = 99)	61.58	27.38	59.23	25.85	0.58
4. BODY AWARENESS (high = 0; low = 99)	55.80	31.53	47.21	27.34	1.90
7. EFFORT TO IMAGERY (low = 0; high = 99)	35.42	28.74	41.64	27.10	-1.47
8. PLEASANT EXPERIENCE (low = 0; high = 99)	73.32	23.07	76.17	18.81	-0.87
9. SHIFT IN STATE (high = 0; low = 99)	51.30	29.27	47.57	25.67	0.89

* $p < .05$ (two-tailed)

In Table 4, using the chi-square test, we again compared the results of the present study with those of Sargent. A significant difference was found on "Body Perception" (83.3% in our study, and 40.0% in Sargent's study, $p < .001$), indicating that body perception during ganzfeld was more changed, compared with Sargent's study.

Another analysis using a median split was also performed. Differences between mean scores of Sargent's Questionnaire items, such as visual imagery, imagery pleasant, experience auditory, out-of-body experience, and time estimation (Sargent, 1980) were compared, but these were all non-significant. Finally, a logistic regression was performed using psi hits as the dependent variable, but no significant predictor variables were found.

Table 4

Results of the Dichotomised Scores using Sargent's Questionnaire:
Comparison between the Present Study and the Sargent (1980) Study

ITEM #	REPORTED	Present study (N = 138)	Sargent Study (N = 20)	χ^2
3. AUDITORY IMAGERY	YES	91 (65.9%)	11 (55.0%)	.50
	NO	47 (34.1%)	9 (45.0%)	
				16.59*
5. BODY PERCEPTION	YES	115 (83.3%)	8 (40.0%)	2.64
	NO	23 (16.7%)	12 (60.0%)	
6. OUT-OF-BODY EXPERIENCE	YES	50 (36.2%)	3 (15.0%)	
	NO	88 (63.8%)	17 (85.0%)	
10. TIME ESTIMATION	I KEPT TIME CONTROL	81 (58.7%)	No data	
	I LOST TIME CONTROL	85 (41.3%)	No data	

* $p < .001$, one tailed.

DISCUSSION

Our results show that the results expected for the ganzfeld condition were better than those for the non-ganzfeld condition (chance expectation = 25%, hit-rate for ganzfeld = 41.3%, hit-rate for non-ganzfeld = 27.5%, the probability of the difference being $p = .043$, one-tailed). However, we did not conclude that the "good" ESP results obtained in the ganzfeld induction were related to a modified state of consciousness. Even if we could compare hitting in free-response studies with and without ganzfeld (or other techniques), we would not be able to conclude with certainty that the hits are related to a modified state of consciousness without being able to measure the degree of this modified state, due to the fact that these results could be due to other variables independent of the non-ordinary state.

The present research also attempted to associate ESP-scores with the altered state that the technique was presumed to induce. This study did not show a relation between hitting and the main ASC items of the Sargent Questionnaire. We cannot be sure that our procedures are actually causing changes in the participants' attention states because such changes cannot always be measured in the studies. The material collected in this experiment

allowed for a few analyses that might yield suggestions for further research, as well as give more insight into the nature of ganzfeld stimulation. We are well aware of the dangers of over-interpreting the data. The present analyses should be viewed as generating ideas rather than as a search for evidence of psi.

This also raises the controversial question of what is a non-ganzfeld condition. Is it the participant relaxing in the same place in a quiet room? With eyes closed or open? Sitting upright in a chair? In an ordinary (not soundproofed) room? Moreover, others have mentioned problems such as lack of control groups, a variety of design and individual difference problems (Stanford, 1987), and an alternative (more general) explanation using expectancy effects of different types. The argument is that although some procedures may have a track record of producing ESP, we do not know if an alteration in consciousness has occurred, or to what degree, and whether alteration of consciousness contributes in any way to success in the experiment.

Stanford undertook efforts of this sort, including types of auditory noise (Stanford, 1979; Stanford & Angelini, 1984), the structure and length of mentation (Stanford & Frank, 1991; Stanford, Frank, Kass & Skoll, 1989a,b), and noise in relation to extraversion (Stanford, Angelini, & Raphael, 1985). Honorton (1974) argued that, in people without previous experience in the ganzfeld, the best results would be obtained with those who fulfilled the following conditions: (1) experience of spontaneous psi (93.5% of our sample reported psi experiences); (2) the practice of meditation or other mental discipline (78% of our sample had some training in meditation); and (3) classification as a feeling-perceptive Myers-Briggs type (Honorton & Schechter, 1987). However, this model does not assess the contributions of altered states to ESP-scoring in relation to its interaction with the other factors of the model. Unfortunately, few researchers have tried to replicate and expand Honorton's model.

Several investigators and commentators have wondered whether the apparent favourability of the ganzfeld, hypnosis, and similar procedures for the occurrence of ESP derives simply from participants' perceptions of them as rituals that are efficacious for the occurrence of ESP (e.g., Braud, 1985). Procedures such as the ganzfeld are themselves quite impressive to many participants, and it seems evident to them that the experimenters are using the procedures precisely because they are efficacious in that way. If participants respond to these procedures with thoughts such as these, they are likely themselves to come to share the experimenter's beliefs about the setting, and therefore, to hold high expectations that ESP would occur. What is more, these expectations of success are built, not upon the potentially threatening belief that one is a powerful psychic, but on the

notion that the procedures themselves can allow psychic things to happen, if the participant wishes them to happen, precisely because the procedures are very special.

Apart from this, it would be interesting to conduct an experiment in order to explore the ganzfeld protocol independent of the “parapsychological” context: that is, the participants in the ganzfeld experiment should be paired with participants being run according to the same protocol, but who are ignorant of the fact that they are participating in a psi experiment and have no knowledge that this condition has anything to do with a parapsychological study. Independent judges would be used to evaluate the target-response correspondences. If the effect is sufficiently strong, we should be able to conclude that ESP was functioning.

We did not find a significant difference in ganzfeld ESP-scores associated with the occurrence and frequency of previous psi experiences. Without doubt, we should assess previous psi experiences by using a brief interview, rather than a four-item questionnaire, and by using a qualified person who could give the experiences some sort of quality rating. It seems clear that systematic work focusing on set and setting variables in relation to psi success will be necessary in order to increase the reliability of our findings.

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APPENDIX

SARGENT QUESTIONNAIRE

Please complete the questionnaire below by answering as appropriate. Please note that each question refers to your experience during the ganzfeld stimuli. Place a percentage on the line, in answer to each question where appropriate. This applies to all questions except 3, 5, and 6, where a simple "Yes" or "No" is all that is required. Please answer all the questions. Thank you.

1. *How would you characterize your mental activity whilst in Ganzfeld?*
0 = structured, rational, directed; 99 = spontaneous, dreamlike, bizarre. ____ %
2. *How vivid was your visual imagery whilst in Ganzfeld?*
0 = low; 99 = high ____ %
3. *Did you experience any auditory imagery whilst in Ganzfeld?*
Yes/No
4. *How aware were you of your body during Ganzfeld?*
0 = high body awareness; 99 = low body awareness ____ %
5. *Did your body feel different than normal (e.g., lighter, heavier, numb, out of proportion) at any time during Ganzfeld?*
Yes/No
6. *Did you at any time during Ganzfeld have the experience that your consciousness was localized in space outside of your body?*
Yes/No
7. *How much effort did you exert trying to get imagery during Ganzfeld?*

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0 = No effort; 99 = High effort. ____ %

8. *How pleasant was your experience during Ganzfeld?*

0 = Unpleasant; 99 = Very pleasant.

9. *As compared to what you expected, how successful was the Ganzfeld in changing your state of consciousness?*

0 = low; 99 = high ____ %

10. *How long did the Ganzfeld seem to last after the “warning blips”?*

0 = I kept track of time; 99 = I lost track of time.

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