The low-absorption subjects simply increased their rate of speech quite slowly throughout the session. These findings indicate a characteristic, discriminative "signature" of high-absorption persons as individuals who rapidly develop a strong involvement with Ganzfeld mentation (as reflected in speech rate) and who sustain it through at least the third quadrant of the session.

Subjects who, as evidenced by this temporal "signature," quickly become involved with Ganzfeld mentation and sustain that involvement for a considerable period should, as a consequence, experience the session as shorter in subjective duration than those who do not. This was confirmed when quadratic trend for words per minute was correlated with subjective time estimates: $r_s = .197$, 110 df, $p = .019$, one-tailed.

Transcript-based verbal indicators can elucidate both the cognitive consequences of arousal and the development of internal attention states. This methodology is objective, unobtrusive, nonreactive, and free from the potential biases of self-report methods.

A PROTOTYPICAL GANZFELD PSI EXPERIMENT WITH A CONTROL CONDITION

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The present experiment is an attempt to bring some further evidence into the Ganzfeld debate. One of the claims made for Ganzfeld studies is that they are supposed to be more successful in detecting ESP compared to non-Ganzfeld conditions. Therefore, it seems strange that so few experiments include a control condition in which Ganzfeld stimulation is compared directly with a non-Ganzfeld condition, because such a comparison is directly relevant to the question whether Ganzfeld stimulation is psi conducive. Schouten (Research Letter, Parapsychology Laboratory, Univ. of Utrecht, [No. 11], 1981, 67-96) gives an overview of Ganzfeld studies which included 34 reports.

The main objective of the present study was to investigate the supposed psi conduciveness of the Ganzfeld by directly comparing subjects' performance in Ganzfeld and non-Ganzfeld conditions. In order to be able to generalize the results as much as possible we went over the details of all experiments reported in Schouten (1981) that showed a significant result. By taking the average, the maximum, or the soundest possibility of the total of listed

particulars, we arrived at a sort of "prototypical" successful Ganzfeld experiment. In addition, we tried to incorporate as much as possible the critique expressed by Hyman (JP, 1985, 3-49) concerning flaws in methods and procedures.

We decided in advance that we would conclude that this experiment would offer support for the claim that Ganzfeld stimulation is psi conducive only in the case we would find both (1) a significant difference between the Ganzfeld and the non-Ganzfeld condition (in a positive direction for the Ganzfeld condition), and (2) significant psi-hitting in the Ganzfeld condition separately.

A secondary aim of the study was to gain more insight into the effect of the Ganzfeld stimulation on subjects. To assess the way subjects experienced the Ganzfeld we asked them to go over a list of words that we expected be relevant to the conditions, and to indicate which words they considered appropriate for their experience. We also asked the subjects to make a prediction of their success in both conditions. This was done because we wanted to investigate the influence of the subject's expectancies on psi-hitting. To test for possible paranormal experimenter effects, two of the experimenters made predictions for every subject regarding his or her ESP scoring.

All subjects (41) were tested for GESP in a Ganzfeld and a non-Ganzfeld condition, which served as a control condition in this experiment. The non-Ganzfeld condition was equal to the Ganzfeld condition in all respects except that no halves of ping-pong balls, red light, headphones, and white noise were used. All subjects took part in one trial in each condition. The order of the conditions was randomized over the subjects. No subject had former experience in Ganzfeld experiments. Every subject was offered an optional compensation of maximally 15 guilders, and later feedback of their results.

A target pool of 80 targets, which had been developed by Schouten, was used. It consisted of pictures taken from National Geographic Magazine, glued on white pieces of cardboard measuring eight by eleven inches. A second, parallel target pool of small copies (four by six inches) was used for judging.

A Schmidt generator was used to generate a random list according to which target sets were to be selected. A second random list was generated containing only numbers one to four for the selection of a target picture from a set. The lists were known to the experimenter-coordinator and to one external person (S.S.), but not to anyone else.

A three-experimenter plan was employed to minimize possible accidental leakage of information.

For the scoring procedure the target set was placed in front of the subject in a left-to-right order and the subject was asked to rate each picture on a 31-point scale (0-30) for similarity between the picture and her experience during the previous 35-minute period. Before the subject made her ratings she was given a spoken semi-standardized instruction. It was decided in advance to evaluate the data by means of Stanford's Z-scores.

Using these scores no difference between the Ganzfeld and the non-Ganzfeld conditions was found (Wilcoxon T = 344.5, Z = -.11, $p > .90$). We also carried out a few post-hoc analyses (these had been planned in advance for the most part as well).

First, the correlation of direct hits in the two conditions was investigated. A positive correlation of hits might be interpreted as (weak) evidence for the hypothesis that psi effects are more dependent on the persons involved than on the method of "inducing" and testing such effects. The test of association tended toward significance (chi-square = 5.48, 1 df, $p < .02$), so that the above hypothesis finds some support. However, it should be taken into account that in neither condition evidence for psi was observed. We also checked whether the order of conditions (i.e., Ganzfeld first vs. Ganzfeld last) had any influence on psi-hitting. This did not seem to be the case (chi-square = .0315, 1 df, $p > .85$). In the course of the experiment the "sender" changed his method of concentration, employing auto-hypnosis from Subjects 18 to 41. Comparing direct hits in both conditions no significant effect of this change in method was found (chi-square = 1.95, 1 df, $p > .15$).

The expectancies of the subjects with respect to their scoring behavior were divided almost evenly: 17 subjects thought they would do best in the Ganzfeld condition, 14 subjects predicted higher scoring in the non-Ganzfeld condition, and 10 subjects did not want to make a prediction. Comparing the predictions with the relative magnitudes of the Stanford scores we were able to arrive at the number of correct predictions: 16 out of a possible 31, which is not significant (binomial $p > .85$) of course, because the probability of a correct prediction is one-half.

Two of the experimenters (A.v.D. and L.D.) had made predictions as well for the probability of scoring for every subject in both conditions. None of these predictions was successful (A.v.D. Ganzfeld: chi-square = .0189, 1 df, $p > .85$; non-Ganzfeld: chi-square = .0001, 1 df, $p > .99$; L.D. Ganzfeld: chi-square = .5831, 1 df, $p > .40$; non-Ganzfeld: chi-square = .0205, 1 df, $p > .60$).

We then evaluated the checklists of words. In order to find clusters of words that maximally differentiated between the two conditions we did a binomial test for every word comparing the total number of entries in both conditions. These tests were no more than an aid in the selection of possibly relevant, characterizing words. For the non-Ganzfeld condition two differentiating words were selected: annoying (6) and ordinary (8), where the numbers within parentheses represent the number of entries in the indicated condition. Although some words received far higher scores, such as distracting (21), stimulating fantasy (14), mentally relaxing (22), bodily relaxing (19), and quiet making (21), these words also received fairly high scores in the Ganzfeld condition.

For the Ganzfeld condition more differentiating words were found. Three of them had negative connotations: dizzy making (9), irritating (10), and confusing (7), while sleepy making (18) was more neutral. Two words were found which were close to being antonyms to the words that differentiated positively for the non-Ganzfeld condition: captivating (19) and interesting (20).

Finally, we tested whether there was a correlation between the magnitude of Stanford scores (either above or below zero) and preference for certain words so that these words could serve as predictors for scoring in either condition. Again exact binomial tests were used. No striking results were found.

It will be clear from the results that this study is to be counted as an unsuccessful replication of other Ganzfeld experiments. Unfortunately, no evidence of psi was found in either condition, so that we cannot reach a (tentative) conclusion about a possible, differential advantage of Ganzfeld stimulation. The only rather weak effect found in the post-hoc analysis speaks against such an advantage.

We may ask ourselves why Ganzfeld stimulation would, if at all, be conducive to psi-hitting. It may be important that the stimulus input is strongly reduced and the attention is, perhaps, directed more inwardly. However, to a certain extent this is also the case if a subject is merely sitting comfortably in a chair. From our query it can be seen that in both conditions words like fantasy stimulating, mentally relaxing, and quiet making received approximately equal scores. Quite a number of subjects (almost ten) experienced the Ganzfeld stimulation as rather negative. Added to this is the fact that the Ganzfeld stimulation may specifically influence the experiences of the subject. For example, some subjects reported having thought of running water or of sitting in an airplane, experiences which they related to the white noise. Some of them reported that they found this very confusing in the rating procedure.