PERSONALITY FACTORS AND ESP DURING GANZFELD SESSIONS[1]

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ABSTRACT

This paper reports an experiment investigating two dimensions of personality (extraversion–introversion and neuroticism) and ESP in the Ganzfeld. Our hypotheses were that high ESP scores would be associated with high extraversion scores and low neuroticism scores. Thirty subjects (receivers) were individually tested in a thirty-minute-long Ganzfeld at the Instituto de Psicología Paranormal in Buenos Aires. Each receiver answered two questionnaires before the Ganzfeld session: *Eysenck Personality Inventory (EPI)*, which measures two personality traits (neuroticism and extraversion) and the *Pre-Ganzfeld Questionnaire*, which rated their level of relaxation, mood, and expectation of success and motivation. One of us (JV) was the sender for all the sample. Each receiver had to 'guess' a target photograph taken from a CD that had 3,500 colour photos of high resolution. We found a significant relationship between extraversion and ESP scores (Fisher's exact test $p = 0.008$, one-tailed, *Phi* = 0.482) (N = 25). There were no significant effects between ESP scores and neuroticism (Fisher's exact test $p = 0.56$, one-tailed). There were also no significant effects between ESP scores and relaxation, mood, motivation and expectation of success before Ganzfeld session. We discuss the possibility that the Ganzfeld technique interacts in some way with extraversion and other variables that may explain the significant effect we obtained regarding extraversion–introversion.

INTRODUCTION

Personality studies have been used in parapsychology research to increase our understanding of psi activity in unselected receivers. Since the beginning of the fifties, projective tests, questionnaires, inventories, attitude scales, and a variety of other instruments used to measure personality have been combined with ESP tests to explore personality traits. The relationship between ESP performance and individual differences in psychological traits has been explored in many studies. Extraversion is one of the most frequently studied trait variables, and the literature discussing ESP performance and extraversion points to the conclusion that the two are positively related (Eysenck, 1967; Palmer, 1977; Sargent, 1981).

The psychologist Hans Eysenck took the position that extraverted subjects should manifest psi better than introverted subjects because they respond more easily to new stimuli (Eysenck, 1967). It could be that the experimental situation may favour extraverts, who respond well to novelties but quickly lose interest in monotonous tasks. Perhaps, in a Ganzfeld environment, the extravert is more sensitive to available stimuli, including weak psi signals.

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In contrast, the introvert would be more inclined to become absorbed in his or her own thoughts and in that way mask the psi information, resulting in *psi missing*. Eysenck also speculated that psi could be a primitive form of perception preceding the cortical development, which suppresses the function of psi. Since extraverts tend to have a lower level of cortical stimulation than introverts, it is hypothesized that extraverts manifest greater psi abilities because introverts have too much internal 'noise' to be able to capture and utilize weak ESP signals. It is also possible that the better results obtained by extraverts could be related to their greater ability to relax and feel comfortable in the social situation of a typical ESP experiment in the laboratory.

Palmer's (1978) and Sargent's (1981) studies found that experiments involving extraverts as participants achieved better results in ESP tasks than those where the participants were predominantly introverts. The most significant contribution to the literature on extraversion and ESP, that of Honorton, Ferrari and Bem (1998), concluded that the extraversion-ESP relationship is confounded by the order effect (order of testing), and that therefore the only evidence for such a relationship comes from free-response studies. Palmer and Carpenter (1998), on the other hand, argued against Honorton's conclusion, noting that when both the order effect and the effect of testing either in groups or individually is taken into account, there is evidence of an ESP-extraversion relationship in both free-response and forced-choice studies. The significant correlation between free-response studies and extraversion was also replicated in the PRL autoganzfeld database. Extraversion scores were available for 221 of the 241 subjects, all of whom completed the MBTI, which contains a measure for extraversion. None of the studies in the meta-analysis had used this questionnaire as a personality assessment (Honorton et al., 1998). The correlation between ESP performance and extraversion for the PRL series was significant, $r = 0.18$, $t(219) = 2.67$, $p = 0.004$ (one tailed), and very close to the meta-analytic result estimated for free-response studies ($r = 0.20$). The difference between the two correlations is nonsignificant (Cohen's $q = 0.02$, $z = -0.26$, $p = 0.793$, two-tailed). Honorton et al. concluded their report by stating: "We conclude that there is a significant ESP/extraversion relationship in the free-response studies, that the relationship is consistent across investigators and scales, and that meta-analysis of parapsychological research domains has predictive validity."

We believe that the dimensions of personality evaluated in this experiment are relevant to ESP performance. The elevated scores of neuroticism (N) are indicators of emotional lability. Those who obtain high scores tend to be hypersensitive, and have difficulties with recuperating after an emotional experience. High scores of extraversion (E) are indicative of a person who is expansive, impulsive and uninhibited, and has numerous social contacts. At the other extreme, the introvert is a tranquil individual, a shy, introspective, reserved person who tightly controls his or her feelings and attaches great value to ethical criteria. It should be explained that the Ganzfeld technique was utilized only as an instrument that could potentiate ESP. Schmeidler's (1988) evaluative summary of the anxiety/neuroticism literature found a clear trend toward higher psi scores for better adjusted or less anxious subjects than for more neurotic or more anxious subjects.

Hypothesis

According to the dimensions of personality identified by Eysenck, we hypothesized that there would be a relationship between extraversion and the number of hits achieved by the subjects, so that greater extraversion would result in more hits. Also, there would be a relationship between neuroticism and the number of hits, so that lower neuroticism would correspond to a greater number of hits.

METHOD

Participants

Thirty subjects (22 females and 8 males) participated in the GESP (telepathy-focused) experiment. The ages ranged between 14 and 84 years (Mean = 37.5; SD = 15.22). All the subjects attended over a period of three months (1998). A brief explanation of the Ganzfeld procedure was given to the participants in the form of a pamphlet. All the participants were volunteers. They were students of parapsychology at the Institute of Paranormal Psychology (IPP). They were not informed of the details relating to the hypothesis of the experiment or the characteristics of the personality test prior to the Ganzfeld session.

Ganzfeld Laboratory

The IPP has built its own Ganzfeld laboratory (see Figure 1). The rooms utilized in this experiment are indicated as A, B and C (A = Ganzfeld lab; B = experimenter's room; C = sender's room). All the rooms shown in Figure 1 were on the same floor, except for the Ganzfeld lab, which is one floor above the floor containing the sender's room (up a 15m flight of stairs). The laboratory was separated from the sender's room by a distance of about 100 feet. Figure 1 shows the location of the sender and the percipient. The laboratory consists of a carpeted room, whose walls are covered with plates of pressed cardboard which do not allow interior or exterior sounds to disturb the subject during the Ganzfeld session. The room is lit by a white bulb before and after the Ganzfeld experience. During the session, two red lights of 80 watts each (intensity is regulated manually) shine on the subject's face. The distance between the receiver's face and the lights is 1.7 m. The auditory stimulation is given by a CD-designed white-noise generated for this experiment which lasts for thirty-three minutes. The CD has a ten-minute recording of the voice of one of us (AP). We recorded on audio tape a procedure based on Jacobson's (1974) progressive relaxation. The percipient remains lying down on a chaise longue (a slight inclination of 30 degrees allows the subject's head to remain comfortably inclined). To the right, a CD player connects the subject with the auditory stimulus by means of headphones adjusted to his ears. The subject cannot adjust the volume of the CD. Two halves of ping-pong balls are firmly fastened to a cotton mask placed over the eyes of the subject and taped to the face with transparent adhesive tape. A chronometer controls the duration of the Ganzfeld, which coincides with the digital counter of the CD's revolutions.

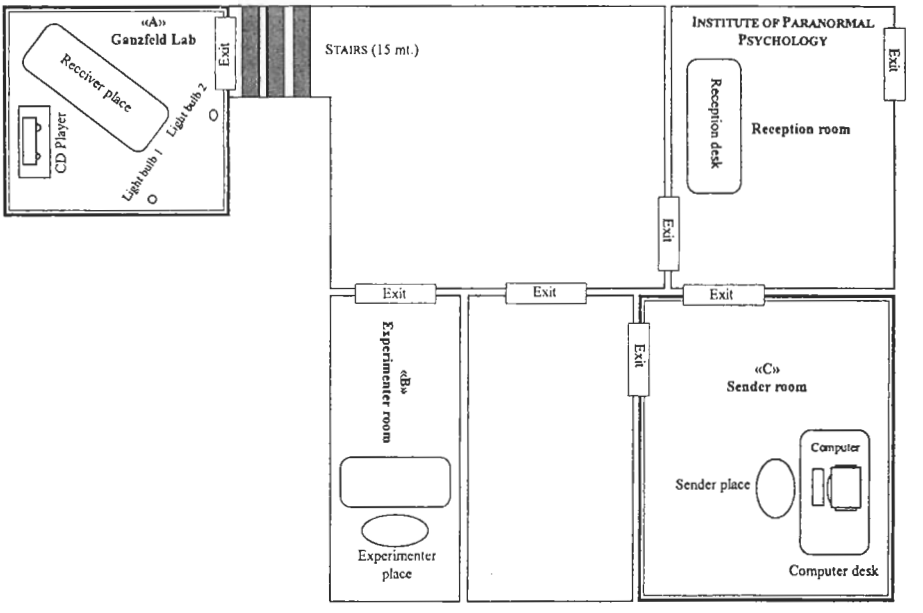

Figure 1. Plan of Ganzfeld laboratory.

Questionnaires

We used Form A of the Spanish version of Eysenck & Eysenck's *EPI* (1978). It is a 57-item self-report inventory, each item of the scale requiring a *yes* or *no* response. The scale measures the following personality dimensions: Neuroticism (N), Extraversion–Introversion (E), and Lie (L). Subjects with high N scores indicate high emotional lability. Subjects with high extraversion scores are usually expansive, impulsive and uninhibited. The other extreme is introversion, described as being quiet, shy, and introspective, the subjects appearing as reserved and distant. In the Spanish adaptation the direction of the Sincerity dimension has been changed so that it does not point to insincerity. The Sincerity [Lie] scale can be taken as a personality variable (social desirability) or simply as a confidence measure of the test with respect to the variables E and N (especially N).

We also used a *Pre-Ganzfeld Questionnaire,* which consists of four questions (it also includes data such as date, time, and type of test). Each subject must indicate his or her present approximate degree of relaxation (from very tense to very relaxed), his mood state before the experience (from bad to very good), expectation of success (from very low to very high), and motivation (from very low to very high) on an ordinal scale with values from 1 to 10. It is useful to measure the subjectively experienced sensation of the relaxation, mood, expectation of success and motivation before the Ganzfeld session. This also yields additional information that could be used for a correlational study between such variables and ESP scores.

Targets

One picture-target for each subject was selected by the sender. We used a CD reader *24X* of a Pentium 100 computer with a SVGA colour screen. The targets were taken from a *Master IMSI* CD ROM, which contained 3,500 colour ClipArt pictures of high resolution in **.jpg** format. Ten groups of well differentiated targets, such as animals, landscapes and textures, foods, caricatures and humorous cartoons, people, planets, religious symbols, scenarios, structures and forms of transport were selected from the ClipArt library. Each group was divided into two to six subgroups of pictures, containing approximately between 6 and 200 pictures numbered from 1 upwards. We decided to use the CD for three reasons: (1) The subgroups of pictures were clustered in a way that facilitated the randomization process. (2) In our view, the pictures constituted good targets for a GESP experiment because of their diversity and visual attractiveness. (3) This avoided any manipulation of the target, particularly during the judging process.

Randomization

Each group of pictures was given a number from 1 to 10 (i.e. animals = 1; caricatures = 2; people = 3; etc.). The number of pictures in each subgroup varied (between 6 and 200 approximately). Each subgroup had numbers and to each number was assigned a value that corresponded to a table of random numbers. JV generated a sequence of (pseudo) random numbers using the statistical program *StatPac Gold 4.5.* and kept a register with the name of the subject-percipient and the selection of the group, subgroup and the picture-target. This register was never in contact with AP (see target security details below). When the Ganzfeld session was finished, JV used the same selection procedure to create the picture set for the judging procedure. This procedure was also unknown to AP. A final randomization procedure was carried out by the sender once the three pictures for the judging procedure had been selected. To avoid the tendency of the subjects to select those pictures placed on the high or low extremes or left or right of the computer screen, the sender randomly assigned to the picture-target a position from 1 to 4. The rest of the pictures were placed according to the decision of the sender, each subject also being randomly assigned. This procedure was unknown to AP.

Target Security

JV made the selection of the targets for each receiver (each session) individually prior to each session. He kept a pencil-and-paper register with the name of each receiver and the selection of the group, subgroup and picture-target. This register, carried in a closed envelope, was in JV's possession all the time until after the results of the judging procedure had been delivered to AP. The register was never in contact with AP. When JV was preparing a single target, he remained alone in the sender room to protect against the possibility of leakage of target information to AP. AP did not access the sender's (JV's) room before, or during, the Ganzfeld session.

The experiment was *double-blind,* so that the experimenter, who was in contact with the receiver during the pre-test and post-test period, did not

know which picture-target the sender had selected. Also, the experimenter did not show the sender's room to the percipient before the Ganzfeld began. The experimenter had no contact whatsoever with the sender during the selection process nor during the observation of the picture target, having left the room before the selection of the picture-target by the sender.

In order to avoid the possibility of sensory cues to the identity of the target we used *Adobe Photoshop 5.0* to display the pictures (targets and decoys) on the computer screen. This PC program has a picture-showing system for displaying four pictures at the same time, which ensures that no sensory cues are left for the percipient or the experimenter. The targets were never printed on paper.

PROCEDURE

Pre-Test Period

This period corresponds to the process prior to the GESP test. When each subject arrived, he or she remained in the reception room at the Institute. Each session was carried out as one trial per subject. The experimenter AP talked to each subject to provide them with more information about the Ganzfeld technique. No subject had any contact with the sender before, during or after the Ganzfeld session. The distance between the sender and the receiver, the walls of the Institute, and the design of the Ganzfeld Lab allow optimal isolation, thus excluding the possibility of communicating — intentionally or unintentionally—any sensory cues (see Figure 1).

Testing Period

This period corresponds to the GESP test during the Ganzfeld session. The experimenter remained in Room B to control the testing period using a chronometer. Seven minutes after the percipient's arrival in the Ganzfeld Lab, the sender began the target-viewing period. The instructions given to each receiver were that he or she should try to remember any impressions (visual, auditory and/or emotional) which came to him during the session. The receiver listened to a tape where AP had recorded all the instructions on relaxation, using a relaxation technique with background music. Each subject remained silent during the session. Once the session ended, AP recorded on audio-tape all the verbal statements obtained from the receiver. The picture-target remained on the computer's screen for twenty-three minutes. After this, using a caller (a sound gadget which emits a *beep*), the experimenter communicated to the sender the end of the target-viewing period (the beginning of the period was signalled in the same way). The sender remained outside the sender's room, isolated from the experimenter and the percipient, leaving the computer screen before the participant came in for the judging.

Post-Test Period

This period corresponds mainly to the process of judging the target. When the experimenter entered the Ganzfeld Lab, each percipient was asked to relate his or her mentations as much as possible. These were audio-taped using a tape-recorder. The receiver was thus being asked to recall the mentation from memory. This procedure differs from many Ganzfeld

experiments, where the receivers speak out loud during the session and therefore do not have to rely on memory at the end of the session. Afterwards, the experimenter and percipient both went to the sender's room.

Judging Period

When the percipient was seated in front of the computer screen, he or she judged his mentations in relation to the picture-targets. Each percipient had a form where the identification of the selected picture was marked by ranking 1 to 4. The judgment was considered a hit when the person placed the target picture in the first place (rank 1). The forms were individually signed by each participant. The experimenter did not make any additional suggestions during the judging process. The process of judging—depending on the percipient—lasted about five minutes.

RESULTS

Table 1

Number and Percentage of Hits and Misses for Low Neuroticism and High Neuroticism Participants

	LOW NEUROTICISM		HIGH NEUROTICISM		TOTAL	
HITS	N	%	N	%	N	%
Yes	5	38.46	4	33.33	9	36
No	8	61.54	8	66.67	16	64
TOTAL	13		12		25	

Fisher's exact test $p = 0.56$ (one-tailed).

Table 2

Number and Percentage of Hits and Misses for Low Extraversion and High Extraversion Participants

	INTROVERSION		EXTRAVERSION		TOTAL	
HITS	N	%	N	%	N	%
Yes	1	8.33	8	61.54	9	36
No	11	91.67	5	38.46	16	64
TOTAL	12		13		25	

Fisher's exact test $p = 0.008$ (one-tailed); *Phi* $= 0.482$.

From a sample of 30 subjects, we eliminated 5 who showed Lie values of less than five, which made the results obtained in N and E less reliable. This reduced the sample to 25 subjects. Eysenck and Eysenck (1978) pointed out that even when Sincerity can be considered a personality variable, it also serves as an indication of the test reliability (low L scores invalidate the results of the questionnaire). Both authors emphasize that scores between 3 and 4 indicate that the desired direction has been attained.

Participants were split into high and low neuroticism, and high and low extraversion groups, according to the median score of these factors. We show the Mean and Standard Deviation in the scales of our sample of 25 receivers: Neuroticism (M = 10.37; SD = 4.29), Extraversion (M = 10.33; SD = 3.65), and Sincerity [Lie] (M = 5.75; SD = 1.57).

Additional analyses included relationships between other variables, such as relaxation (M = 5.77; SD = 2.01), mood (M = 7.13; SD = 1.59), expectation (M = 7.47; SD = 2.08) and motivation (M = 8.0; SD = 1.84), with the hits in the Ganzfeld sessions. For our statistical analysis, we decided to use Fisher's exact test. The level of significance was fixed as 0.05.

Table 3

Number and Percentage of Hits and Misses for Low Relaxation and High Relaxation Participants

	LOW RELAXATION		HIGH RELAXATION		TOTAL	
HITS	N	%	N	%	N	%
Yes	6	40.0	4	26.67	10	33.33
No	9	60.0	11	73.33	20	66.67
TOTAL	15		15		30	

Fisher's exact test $p = 0.70$ (two-tailed); p adjusted = 0.99.

Table 4

Number and Percentage of Hits and Misses for Low Mood and High Mood Participants

	LOW MOOD		HIGH MOOD		TOTAL	
HITS	N	%	N	%	N	%
Yes	7	35.0	3	30.0	10	33.33
No	13	65.0	7	70.0	20	66.67
TOTAL	20		10		30	

Fisher's exact test $p = 1$ (two-tailed).

As can be seen from Table 1, there was no significant difference between low neuroticism and high neuroticism participants in the number of hits they had —Fisher's exact test $p = 0.56$ (one-tailed). Therefore, our hypothesis, that high neurotic participants would have fewer hits, was not supported. Also, as Table 3 shows, there was no significant difference between low relaxation and high relaxation participants in the number of hits they had — Fisher's exact test $p = 0.70$ (two tailed). There was also no significant difference between the number of hits achieved by low mood and high mood participants (Table 4)— Fisher's exact test $p = 1$ (two tailed); no significant difference between low expectation and high expectation participants (Table 5) — Fisher's exact test $p = 0.90$ (two-tailed); and no significant difference in the number of hits

between low motivation and high motivation participants (Table 6)—Fisher's exact test $p = 0.68$ (two-tailed).

Table 5

Number and Percentage of Hits and Misses for Low Expectation and High Expectation Participants

	LOW EXPECTATION		HIGH EXPECTATION		TOTAL	
HITS	N	%	N	%	N	%
Yes	4	28.6	6	37.5	10	33.33
No	10	71.4	10	62.5	20	66.67
TOTAL	14		16		30	

Fisher's exact test $p = 0.90$ (two-tailed); *Phi* = 0.02; p adjusted = 1

Table 6

Number and Percentage of Hits and Misses for Low Motivation and High Motivation Participants

	LOW MOTIVATION		HIGH MOTIVATION		TOTAL	
HITS	N	%	N	%	N	%
Yes	5	27.78	5	41.7	10	33.33
No	13	72.22	7	58.3	20	66.67
TOTAL	18		12		30	

Fisher's exact test $p = 0.68$ (two-tailed); *Phi* = 0.08; p adjusted = 0.99.

DISCUSSION

This report explored the relationship between extraversion–introversion and ESP in the Ganzfeld. Our hypothesis was that significant ESP scores would be associated with high extraversion scores and low neuroticism scores. We found a significant relationship between extraversion and ESP scores (Fisher's exact test $p = 0.008$, one-tailed, *Phi* = 0.482 (N = 25)—Table 2). There were no significant effects between ESP scores and neuroticism (Fisher's exact test $p = 0.56$, one-tailed—Table 1). Also, there was no significant effect between ESP scores and relaxation, mood, motivation and expectation of success. It is interesting to note that the difference found between introverts and extraverts is quite large, and its magnitude is important. We asked ourselves if the Ganzfeld technique interacts with the extraversion variable. Even if one expects to find a greater number of hits in general due to the Ganzfeld technique, if there had been no interaction, this increment should have been distributed equally between both groups. Then, we would have seen the same difference in hits between the dimension of personality (introverts and extraverts) found in other types of ESP tests. Although other investigators have employed the NEO-PI as a scale in other Ganzfeld studies (Morris, Dalton, Delanoy & Watt,

1995), we used the EPI as a way to measure extraversion. There have been other investigations that relate psi with personality scales besides extraversion (Palmer, 1978; Sargent, 1981).

We must also recognize that the sample was small. It had been recruited, for the most part, from parapsychology courses, and the experiment was conducted mainly on a group of subjects who believed in ESP. In spite of that, the results that related expectation and motivation before the experiment with volunteer subjects who believed in ESP did not yield significant results in relation to ESP (see Tables 3, 4, 5 and 6).

We plan to explore Ganzfeld research from a perspective which is more phenomenological than experimental. A future design will include the following considerations:–

(a) A measurement of the type and frequency of the percipient's previous psi experiences, which is probably related to 'belief,' influencing the ESP performance in the Ganzfeld;[3]

(b) Exploring the feelings and success expectation in the participants of the experimental scenario that may yield valuable information which should not be underestimated; there is a tendency by many investigators to pay attention only to the psychological conditions of the 'percipient' of the ESP information in an isolated way, neglecting the psychological exploration of the 'sender'.

(c) It is possible that some of the many factors that interact in the Ganzfeld technique influence by potentiating—somehow—the difference normally found in both personality dimensions. Consequently, we must design experiments to study the question whether the Ganzfeld condition is, by itself, facilitating the ESP performance, for example, by alternating the conditions Ganzfeld vs. no-Ganzfeld with each subject, and correlating such conditions with other personality variables.

The study of subjects' verbalizations during Ganzfeld should also include a phenomenological analysis. Psi researchers usually apply the Ganzfeld procedure to increase the number of ESP hits and the majority have conducted studies evaluating the statistical significance of the results with subjects who believe in ESP. A design should allow us to explore the Ganzfeld protocol *independently* of the parapsychological context. That is, the participants in the Ganzfeld experiment should be paired with participants subjected to the same protocol, who ignore the fact that they are participating in a psi experiment, or have no knowledge that this condition has anything to do with a parapsychological study. This condition is difficult to carry out, especially for the laboratory investigator, or an institute of parapsychology. It is possible that a cognitive research laboratory could administer exactly the same protocol. The researchers would propose to their subjects—who in reality are blindly participating in a typical parapsychological experiment—that they are taking part in a study of their own imagery and visualization abilities in the Ganzfeld. Independent judges would be used to evaluate the correspondences. If the effect is sufficiently strong, we should be able to note the functioning of ESP

[3] Ganzfeld technique might also serve as a 'ritual' to the psi experience of the subject. We plan to use a design with participants who are believers and non-believers ('goats' in Schmeidler's terms) (Schmeidler & McConnell, 1958).

independently of 'belief' (at least conscious) in psi and in the context of the experiment.

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