
Technical Paper No. 5

Personality Factors and Psi-Ganzfeld Sessions: A Replication and Extension

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Abstract: This is a report of a study of the relationship between personality factors and ESP scores obtained using the ganzfeld technique, which has had a modest but consistent number of successes in various laboratories. Eysenck's (1967) linking of extraversion and arousal was deemed potentially important to ESP performance. The relationship between ESP performance and individual differences and several personality dimensions have been studied, according to Honorton's model which predicts the personality characteristics of successful ganzfeld participants. One hundred and thirty-eight participants attended one ganzfeld session (telepathy-focused) at the Institute of Paranormal Psychology, Argentina. The first author (AP) was the experimenter, who received each participant, and the second author (JV) was sender for each participant. Two personality inventories (the Eysenck Personality Inventory and the Sixteen Personality Factor Questionnaire) were administered before each ganzfeld session. Overall results of this experiment offered some four personality profiles that arise from a combination of N and E

¹ We are grateful to the Bial Foundation for its financial support of this research project. Thanks are also due to Juan Carlos Argibay for his statistical assistance. Romina Mielgo also assisted with the EPI and 16PF evaluation.

scores. Though this study did not show significant results relating direct hits to E or N scores or the 16PF factors, they were found for sanguine females and choleric male subjects. Cholerics obtained more hits than did melancholics.

INTRODUCTION

The Ganzfeld technique has been associated with a modest but consistent number of successes in various laboratories. Meta-analysis complements this investigation (Honorton, Berger, Varvoglis, Quant, Derr, Schechter, & Ferrari, 1990; Ben & Honorton, 1994). These results are notable since the trials have been carried out, in a majority of cases, with ordinary persons, and volunteers and not by participants selected for their psychic ability (Bierman, 1995; Broughton and Alexander, 1997). Morris, Cunningham, McAlpine, and Taylor (1993) and Dalton (1997) used the NEO-PI to assess openness scores for pairs of musicians. These, in turn, were predicted to correlate positively with ganzfeld-psi success. While overall openness showed a positive but nonsignificant correlation with psi success, two of the six subscales (fantasy and openness to actions), showed significant correlations, the subscale of 'openness to actions' very much so ($p < .02$). Aside from openness to experience, an examination of other characteristics of creative individuals suggests that other factors of the NEO-PI might also relate to creativity, and in particular, extraversion. Honorton (1992), Honorton, Ferrari and Ben (1990), and Parker, Persson and Haler (2000) found similar findings.

The relationship between ESP performance and individual differences has been studied, with perhaps the most consistent evidence accumulating for the finding that percipients who are higher in "feeling" and "perceiving" scores on the Myers-Briggs Type Inventory (MBTI) show higher ESP scores (Honorton & Schechter, 1987; Palmer & Kanthamani, 1991). According to Honorton's (1992) model for predicting personality characteristics of successful ganzfeld participants, four factors are identified: (1) prior psi experience; (2) the practice of some mental discipline; (3) prior laboratory psi testing; and (4) Feeling/Perception preferences on the Myers Briggs Type Inventory.

In order to identify correlates of successful psi performance, parapsychologists have correlated various measures of personality and cognitive style with psi performance. For example, the ESP/Extraversion literature has led to the conclusion that ESP performance is positively related to extraversion (Honorton, Ferrari, & Ben, 1990). The correlation between ESP performance and extraversion for the Psychophysical

Research Laboratories (PRL) series was significant, $r = .18$, $t(219) = 2.67$, $p = .004$ (one-tailed), and very close to the meta-analytic result estimated for free-response studies ($r = .20$). In a earlier paper (Parra & Villanueva, 2003a), we also found a relation between extraversion and ESP scores (Fisher's exact test $p = .008$, one-tailed; $\Phi_{hi} = .482$) but no significant results with neuroticism. The rationale, briefly, is that the extraverted should score better in relation to psi activity than do the introverted, in line with Palmer's (1978) and Sargent's (1981) findings: The extraverts would be better in ESP tasks than that of the introverts. Due to the size of the present sample, we decided to repeat and extend our findings, introducing also the Cattell Sixteen Personality Factor (16PF) Questionnaire.

Eysenck (1967) holds that extraverted receivers should manifest more psi activity than do introverted receivers because they respond more easily to new stimuli. It could be that the experimental situation may favour extraverts, who respond well to novelty but lose interest with monotony. In contrast, the introvert would be more inclined to entertain themselves with their own thoughts, and in that way mask the psi information, resulting in psi-missing. Since extraverts tend to have a lower level of cortical stimulation than introverts, it is expected that the extraverts would manifest more psi-hitting because the introverts have too much internal "noise" to be able to capture and utilise the weak ESP signal (Eysenck, 1967; Eysenck & Eysenck, 1964, 1985).

Cattell's personality scale was developed using factor-analytic techniques. This instrument yields 16 primary factors (Cattell, Eber, & Tatsuoaka, 1970). Nicol and Humphrey (1953) used the 16PF in an ESP experiment with 36 adults. ESP scores were correlated with factors C, O, and Q₄. Each of these contributes to the anxiety factor and in each case the direction of the relationship indicated higher ESP scores among the less anxious. Nicol and Humphrey (1955) found that relevant scales supported a negative relationship between anxiety and ESP—e.g., the correlations with factor C (emotional stability), Kanthamani and Rao (1973) used the High School Personality Questionnaire (HSPQ; similar to the 16PF) with Indian high-school students using forced-choice ESP tests. Neuroticism correlated significantly negatively with scores on the ESP test.

Hypotheses

Given the dimensions of personality identified by Eysenck and Cattell, we hypothesised that there is a relationship between extraversion and the number of hits achieved by the participants, such that greater extraversion would result in more hits. We also hypothesise that there is a

relationship between neuroticism and the number of hits, such that lower neuroticism scores correspond with a greater number of hits.

Our aim here is to replicate and extend the finding about ESP and personality characteristics of our first study (Parra & Villanueva, 2000a), to gain more insight into the effect of the ganzfeld stimuli, adding the 16PF as an additional set of predictors.

METHOD

Participants

The sample consisted of 138 subjects (89 females and 49 males [64.5% and 35.5% respectively]) who were all well-educated, psi-believing participants. Their ages ranged between 18 and 77 yrs (Mean = 46.49; $SD = 13.44$). Each attended two trials of GESF (telepathy-focused) using ganzfeld and free-response techniques. They were students of parapsychology at the Institute of Paranormal Psychology (IPP), Argentina. Personal experiences suggestive of psi were reported by the majority of the participants (93.5%). Seventy-eight percent of the participants had some training in meditation or other techniques involving an internal focus of attention.

Participant Orientation

Participants were recruited by mailing announcements (pamphlets) and also by placing an announcement on the Internet.² Participants received an information pack before the session, which included the Eysenck Personality Inventory (Form A: Eysenck, 1964/1978), the Sixteen Personality Factor Questionnaire (16PF; Form A) and general information about the research program. AP attempted to create a friendly and informal social atmosphere, engaging in conversation with the receiver before the session.

Testing procedure

The experimenter left the Ganzfeld room before the Ganzfeld stimulus began, and returned when the stimulus had ended. During the session, the experimenter remained silent in room B (see Figure 1) to

control the testing period using a chronometer. After the receiver had been in the Ganzfeld room, the experimenter indicated twice using a caller (a sound gadget which emits a *one-bip*) to the sender (indicating the beginning and the end of the viewing period). The picture-target remained on the computer screen for 23 minutes, and was not printed on paper.

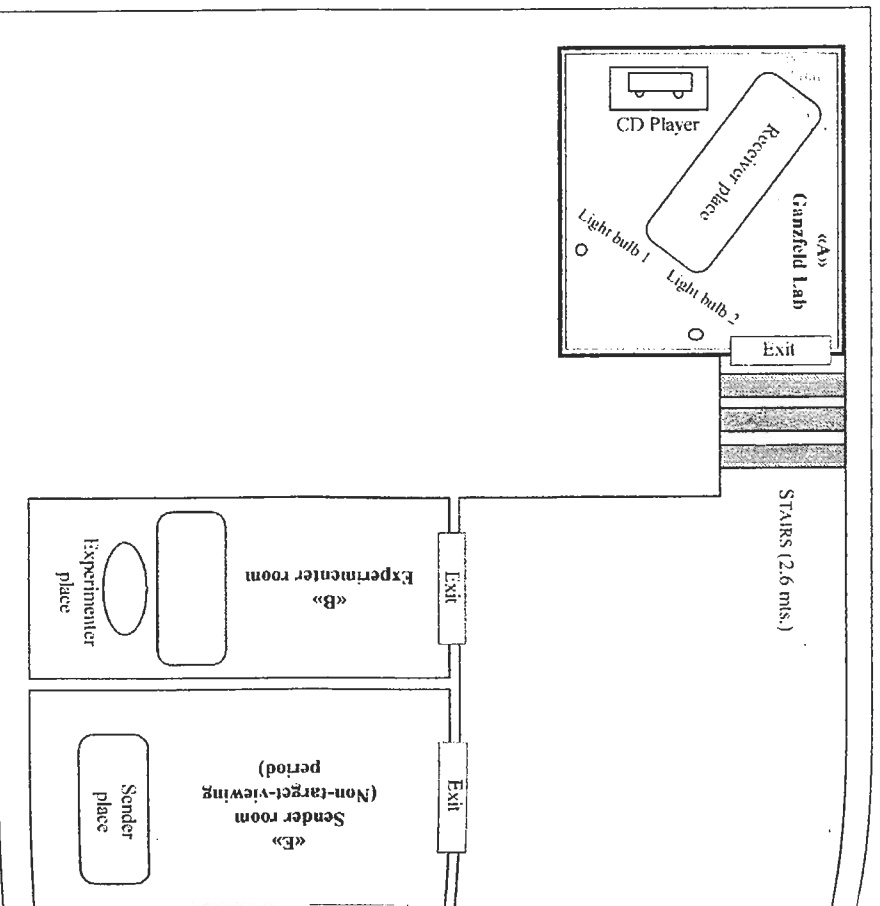
Receivers underwent a 9-minute recorded relaxation exercise before the mentation period, which includes progressive relaxation exercises and autogenic phrases (Jacobson, 1974). The auditory stimulation was given using 33 minutes of white-noise on a specially designed CD produced for this experiment.

Each receiver was asked to verbalise his or her mental impressions as much as possible after the Ganzfeld stimuli had been put in place, which were then tape-recorded by the experimenter. Then, each sender left from the sender's room to room E (see Figure 1), keeping apart from the receiver and the experimenter. Afterwards, both the experimenter and the receiver went to the sender's room. When the receiver was seated in front of the computer's screen, the judgment procedure began.

Layout and Equipment

The Ganzfeld lab is described elsewhere (Parra & Villanueva, 2000a). Basically, receivers are sequestered in an adjacent room (Reception room). Receivers remained lying down on a *chaise longue*. The experimenter keeps the receiver company while he prepares the receiver for visual and auditory ganzfeld stimulation. Translucent hemispheres (two halves of ping-pong balls) are taped over the receiver's eyes, firmly fastened to a cotton mask with transparent adhesive tape. A CD player Sanyo™ *MCD-X97* connects the receiver with the auditory stimulus by means of headphones to the ears. The receiver could not adjust the volume of the CD. AP controls the time duration of the Ganzfeld session using a chronometer, which synchronises both the digital counter of the CD's revolutions and the computer's real-time clock. Computer peripherals used by the sender included a real-time clock, 56X-CD-R player, which played from a pool of targets on CD, and a *Pentium III*™ computer with *Acer*™ color screen *Super VGA*™. (See Figure 1 for layout of the ganzfeld laboratory.)

² Go to www.aijpsi.com.ar/ganzfeld.htm.



Test instructions

The experiment was explained to the subjects by the experimenter. He told them that we were conducting a telepathy experiment using the ganzfeld, that this situation is said to stimulate psychic abilities in people, and that we wanted to explore this situation in a research study.

Instruments

Eysenck Personality Inventory, Form A (Eysenck & Eysenck, 1964/1978): The EPI is a 57-item self-report inventory. Each item of this scale requires a 'yes' or 'no' response. A standardised Spanish version was used. It measures two personality factors: Neuroticism (N), and Extraversion (E). Receivers with high N scores are emotionally unstable. Receivers with high E scores are usually expansive, impulsive and uninhibited. Subjects with low E, the other pole (Introversion), are described as quiet, shy, and introspective, reserved and distant. Crossing low and high scores for Neuroticism and Extraversion, four personality profiles were obtained: Phlegmatic (N low and E low), Melancholic (N high and E low), Choleric (E and N high) and Sanguine (E high and N low).

The Sixteen Personality Factors Questionnaire is a 187-item self-report inventory, designed by R. B. Cattell (Cattell, 1957; Cattell, 1972; Cattell, Eber & Tatsuoka, 1970). A standardised Spanish-Argentine version was used. It measures sixteen personality factors: (A) Reserved-Open, (B) Intelligence high-low, (C) Affected by feelings-Emotionally stable, (E) Submissive-Dominant, (F) Sober-Lively, (G) Unconcerned-Scrupulous, (H) Shy-Bold (I) Sensibility-hard/Sensibility-soft, (L) Trusting-Skeptical, (M) Practical-Imaginative, (N) Frank-Asute, (O) Placid-Apprehensive, (Q₁) Conservative-Analytical/critical, (Q₂) Dependent-Self-sufficient, (Q₃) Self-conflictive-Controlled, and (Q₄) Relaxed-Tense.

Targets

A CD-R contained 3,500 high-resolution pictures (taken from a CD-R clip-art) for computer. Groups of well-differentiated targets, such as animals, icons, foods, people, landscapes, religion, scenic pictures, structures, and humorous cartoons were used. One picture for each receiver was randomly selected by the sender. Further information about the target security is described by Parra and Villanueva (2000a, 2003b).

Judging procedure

The receiver viewed four potential targets (the actual target and three decoys) on the computer screen). They were presented in one of four random sequences. The receiver, viewing each candidate, associates to the item as though it were the actual target, describing perceived similarities between the item and the ganzfeld impression. A score of 1 is assigned to the candidate the receiver feels has the strongest similarity to his or her ganzfeld impression; a score of 4 is given to the candidate the receiver feels is least like the ganzfeld experience (Scores 2 and 3 were also noted).

Analysis

The percentages and medians presented were calculated using SPSS software (1999).

RESULTS

Overall results

This experiment offered some support for the claim that ganzfeld stimulation is psi-conductive in that we found psi-hitting using the ganzfeld (hits = 41.3%; misses = 58.7%; z -score = 4.32; $p < .001$, one-tailed).

Results for Extraversion and Neuroticism

Table 1 shows a non-significant relation between N (low = 0-9; high = 10-24) and E (low = 0-10; high = 11-24) scores with ESP scores.

Note that from this point onwards, gender was utilised as a third variable. Its effect can be seen in Table 2.

For the Analysis of Variance, the scores (1-4) assigned by the receivers to evaluate the picture-target as the dependent variable were utilised. Score 1 represents high coincidence, so that the lower the estimated marginal means (see Table 3), the greater the psi-hitting.

Tables 2, 3, and 4 indicate a significant difference between ESP hits among males and females, their N scores ($p = .02$) and their N and E scores (male and female, $p = .04$). We did not find direct psi-hitting with N and E, rather a significant result due to the interaction between males and females, N and E.

TABLE 1
NUMBER AND PERCENTAGE OF HITS AND MISSES FOR NEUROTICISM AND
EXTRAVERSION SCORES

HIT	NEUROTICISM		
	LOW	HIGH	TOTAL
YES	28 (39.4)	29 (43.3)	57 (41.3)
NO	43 (60.6)	38 (56.7)	81 (58.7)
TOTAL	71	67	138
HIT			
HIT		EXTRAVERSION	
	LOW	HIGH	TOTAL
YES	28 (38.4)	29 (44.6)	57 (41.3)
NO	45 (61.6)	36 (55.4)	81 (58.7)
TOTAL	73	65	138

TABLE 2
ANALYSIS OF VARIANCE FOR GENDER, NEUROTICISM AND EXTRAVERSION

SOURCE	df	F	p
MALE/FEMALE	1	.000	n.s.
NEUROTICISM	1	.761	n.s.
EXTRAVERSION	1	.023	n.s.
MALE/FEMALE AND NEUROTICISM	1	5.397	.02
MALE/FEMALE AND EXTRAVERSION	1	1.653	n.s.
NEUROTICISM AND EXTRAVERSION	1	1.156	n.s.
MALE/FEMALE, NEUROTICISM AND EXTRAVERSION	1	4.497	.04
TOTAL			138
ERROR			130

TABLE 3
MEAN RANK-SCORES FOR MALES AND FEMALES, FOR LOW NEUROTICISM AND HIGH NEUROTICISM AND FOR LOW EXTRAVERSION AND HIGH EXTRAVERSION

SEX	NEUROTICISM	EXTRAVERSION	Mean	SD Error
MALE	LOW	LOW	2.000	.258
	HIGH	HIGH	2.933	.291
	LOW	LOW	2.000	.460
	HIGH	HIGH	1.556	.376
FEMALE	LOW	LOW	2.235	.273
	HIGH	HIGH	1.700	.252
	LOW	LOW	2.323	.202
	HIGH	HIGH	2.238	.246

TABLE 4
NUMBER AND PERCENTAGE OF HITS AND MISSES FOR THE DIFFERENCE BETWEEN MALES AND FEMALES FOR LOW NEUROTICISM AND HIGH NEUROTICISM AND FOR LOW EXTRAVERSION AND HIGH EXTRAVERSION

SEX	NEUROTICISM	EXTRAVERSION	HITS		TOTAL
			YES N (% within E)	NO N (% within E)	
MALE	LOW	LOW	8 (42.1)	11 (57.9)	19
	HIGH	HIGH	2 (13.3)	13 (86.7)	15
	LOW	LOW	3 (50.0)	3 (50.0)	6
	HIGH	HIGH	6 (66.7)	3 (33.3)	9
FEMALE	LOW	LOW	7 (41.2)	10 (58.8)	17
	HIGH	HIGH	11 (55.0)	9 (45.0)	20
	LOW	LOW	10 (32.3)	21 (67.7)	31
	HIGH	HIGH	10 (47.6)	11 (52.4)	21

Personality profiles such as choleric males (high N scores and high E scores) and sanguine females (low N and high E scores) psi-hit (Male estimated mean = 1.56, hits = 67% and Female estimated mean was 1.70; hits = 55%).

Extroverts obtained better results than the introverts, except introverted males who psi-hit. Males who scored high N, obtained better psi results (60% vs. 29% of the hits), while the females, who scored low N scored tend to psi-hitting (hits = 49% vs. 38%), although the difference is not as strong as it is for the males.

Results for the 16 Personality Factors

Means and SDs, respectively, for the 16PF were: (A) Warmth (5.12; 1.97), (B) Reasoning (4.05; 1.98), (C) Emotional Stability (5.95; 1.93), (E) Dominance (5.76; 1.91), (F) Liveliness (4.98; 1.61), (G) Rule-Consciousness (5.18; 1.67), (H) Social Boldness (5.96; 1.89), (I) Sensitivity (6.09; 1.85), (L) Vigilance (5.74; 1.79), (M) Abstractedness (5.18; 1.83), (N) Privatness (5.40; 1.91), (O) Apprehensiveness (5.46; 1.99), (Q₁) Openness to Change (4.93; 1.87), (Q₂) Self-Reliance (6.69; 1.87), (Q₃) Perfectionism (5.14; 1.41), (Q₄) Tension (5.50; 1.81).

Logistic Regression (forward stepwise method), analysing the sixteen personality factors and the ESP hits as the dependent variable, was carried out. No variable was related to ESP hitting. Table 5 shows non-significant differences.

DISCUSSION

This report explored the relationship between two personality factors (Extraversion and Neuroticism: measured with the EPI) and sixteen other personality factors (measured with the 16PF) with ESP under ganzfeld conditions. In our earlier study (N = 25), we had found a significant relationship between extraversion and ESP scores (Fisher's exact test $p = .008$, one-tailed, $\phi_{hi} = .482$). However, the present study, despite using a larger sample, did not show significant results, such as a correlation between neuroticism or extraversion scores with direct ESP hits (Parra & Villanueva, 2000a).

As mentioned above, four personality profiles (Phlegmatic, Melancholic, Choleric and Sanguine) arise from a combination of the scores on Neuroticism and Extraversion jointly. Using an Analysis of Variance we found a significant relation between extraversion, neuroticism and the

TABLE 5
NUMBER AND PERCENTAGE OF HITS AND MISSES FOR LOW AND HIGH SCORES
ON THE 16PF FACTORS³

FACTOR		HITS		
		YES	NO	TOTAL
A (Warmth)	LOW	31 (39.7)	47 (60.3)	78
	HIGH	26 (43.3)	34 (56.7)	60
TOTAL		57	81	138
B (Reason)	LOW	47 (43.5)	61 (56.5)	108
	HIGH	10 (33.3)	20 (66.7)	30
TOTAL		57	81	138
C (Emotional Stability)	LOW	26 (41.3)	37 (58.7)	63
	HIGH	31 (41.3)	44 (58.7)	75
TOTAL		57	81	138
E (Dominance)	LOW	29 (45.3)	35 (54.7)	64
	HIGH	28 (37.8)	46 (62.2)	74
TOTAL		57	81	138
F (Liveliness)	LOW	36 (41.4)	51 (58.6)	87
	HIGH	21 (41.2)	30 (58.8)	51
TOTAL		57	81	138
G (Rule-Consciousness)	LOW	36 (41.4)	51 (58.6)	87
	HIGH	21 (41.2)	30 (58.8)	51
TOTAL		57	81	138
H (Social Boldness)	LOW	23 (39.7)	35 (60.3)	58
	HIGH	34 (42.5)	46 (57.5)	80
TOTAL		57	81	138
I (Sensitivity)	LOW	23 (42.6)	31 (57.4)	54
	HIGH	34 (40.5)	50 (59.5)	84
TOTAL		57	81	138
L (Vigilance)	LOW	22 (37.9)	36 (62.1)	58
	HIGH	35 (43.8)	45 (56.3)	80
TOTAL		57	81	138
M (Abstractedness)	LOW	38 (43.2)	50 (56.8)	88
	HIGH	19 (38.0)	31 (62.0)	50
TOTAL		57	81	138
N (Privacy)	LOW	31 (40.3)	46 (59.7)	77
	HIGH	26 (42.6)	35 (57.4)	61
TOTAL		57	81	138
O (Apprehension)	LOW	32 (40.0)	48 (60.0)	80
	HIGH	25 (43.1)	33 (56.9)	58
TOTAL		57	81	138
Q ₁ (Openness to Change)	LOW	31 (35.2)	57 (64.8)	88
	HIGH	26 (52.0)	24 (48.0)	50
TOTAL		57	81	138
Q ₂ (Self-Reliance)	LOW	20 (46.5)	23 (53.5)	43
	HIGH	37 (38.9)	58 (61.1)	95
TOTAL		57	81	138
Q ₃ (Perfectionism)	LOW	33 (38.8)	52 (61.2)	85
	HIGH	24 (45.3)	29 (54.7)	53
TOTAL		57	81	138
Q ₄ (Tension)	LOW	25 (36.8)	43 (63.2)	68
	HIGH	32 (45.7)	38 (54.3)	70
TOTAL		57	81	138

³ Percentages within each factor. Chi-square data were non-significant.

gender of the participants: Female participants, who scored low on Neuroticism and high on Extraversion (Sanguine profile, according to Eysenck's personality theory) obtained high ESP scores. In contrast, male subjects, who scored high on both neuroticism and extraversion (Choleric profile), obtained high ESP scores. Eysenck's (1967) linking of extraversion and arousal seemed potentially important and, conceivably, might be related to ESP performance. Extraverts, whom Eysenck regards as chronically less aroused than introverts and who, thus, are seen as tolerating and even seeking higher levels of stimulation than introverts might respond well to the loud noise of Ganzfeld, whereas introverts might enjoy the setting less and relax less well in it.

Psi-hitting in the ganzfeld condition could be facilitated using extravert subjects (Honorton, Ferrari & Bem, 1990; Morris, Cunningham, McAlpine, & Taylor, 1993; Schilitz & Honorton, 1992). However, this variable is somewhat debated (Bierman, Bosga, Gerding & Wezelman, 1993; Dalton & Uts, 1995), as extraverts are those people who generally feel at ease in most social situations and enjoy interactions with groups of people, and would thus feel more relaxed in the social setting of the laboratory. Introverts typically prefer to work alone, finding most social interactions with a multitude of people overwhelming and uncomfortable.

That a definite personality profile optimises the ESP yield is a useful finding for understanding psi-dynamics. For this reason it is felt that introverts may do as well as extraverts in ganzfeld research if some way were found to provide a more conducive social setting for them—one in which they were not required to speak aloud about normally private thoughts, or interact with more than one person throughout the experiment. For example, an examination of the extraversion/introversion research by Honorton and Schechter (1987) showed that while extraverts tended to produce more hits, there was a significant tendency for extraverts to obtain hits with friends as 'senders', while introverts tended to hit with the lab's 'senders'.

Given all this, however, it must be emphasised that we found no relation between ESP and extraversion in this experiment. Moreover, we did not find significant results using the 16PF. More research should be carried out in order to ascertain how and why both situations were so.

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Australian Journal of Parapsychology

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*Instituto de Psicología Paranormal
Salta 2015 (C1137ACQ).*

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